10¢ A COPY

The OIL WEEKLY

Exclusively Devoted To The Production and Transportation of Oil and Gas

March 30, 1928 **Volume 49. No. 2**

"I'll take chances on some things — but not on Couplings"

"Uncertainty makes some things mighty interesting. But when it comes to couplings, give me a sure thing every time.

"Give me Harrisburg Couplings forged seamless from start to finish in Harrisburg's own furnaces and rolling mills. Couplings with threads so accurate that a fellow can use them for gauges—couplings that never go bad, never disappoint!

"Give me Harrisburg Couplings, I say, and I'll show you oil production you'll find hard to beat—and mighty hard to equal."

HARRISBURG PIPE & PIPE BENDING CO.
HARRISBURG, PA.

Fully equipped with Our Own Open Hearth Furnaces, Rolling Mills and Forge Shops

DISTRIBUTORS

Harrisburg Pipe & Pipe Bending Co. of Texas, Inc., Houston, Texas
Harrisburg Supply Co., Tulsa, Okla.
George J. Hausen, Inc., San Francisco, Los Angeles and Taft, Calif.

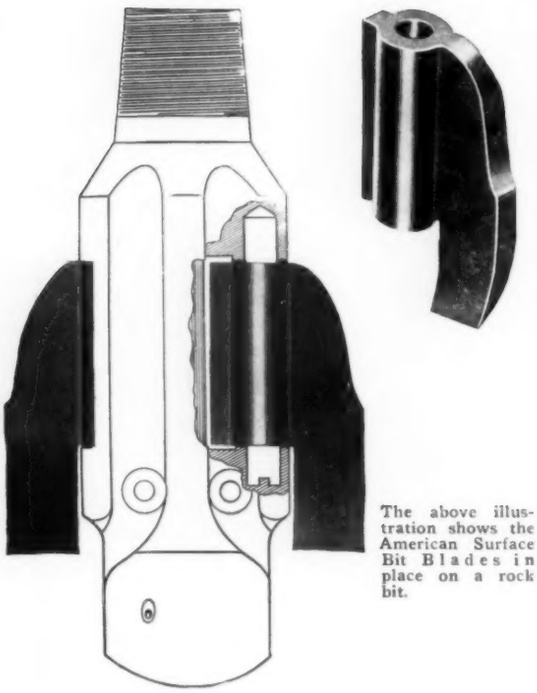
HARRISBURG

FORGED SEAMLESS STEEL COUPLINGS

Fishing Tools Drilling Tools

AMERICAN IRON & MACHINE WORKS, INC. · OKLAHOMA CITY ·

Why Carry Heavy Fish Tail Bits When - - - -



The above illustration shows the American Surface Bit Blades in place on a rock bit.

You can get American Surface Bit Blades . . . . for your rock bits . . . . that will do the same work? The American Blades cost you less money and require less handling and building up charges.

Just remove your side reamers and put on the American Blades . . . . then you're ready to make the pilot hole and the surface hole . . . . at the same time. The illustration at the left tells the story. Your cones on the bit make the pilot hole.

Try these on rocks and boulders. You get the same performance that you get from the fish tail bit. These blades can be built up or dressed—just as the fish tail bits are.

Don't carry around the extra handicap of a separate bit when these attachments can save you money and inconvenience. Specify the size bit you want to run the blades on—and the size hole you want to cut—when you send your order.

Look over the list of American Oil Field Tools below. You will find that there are American Tools in use among all leading contractors. Whenever the drilling industry indicates that a new tool might mean greater efficiency—there will be an American tool developed to meet that need.

The American Catalog of Oil Field Equipment gives complete details and description of the American line. Write for it today.

American Iron and Machine Works, Inc.

Manufacturers of Oil Field Equipment

OKLAHOMA CITY, OKLAHOMA

American Oil Field Equipment

American Releasing and Circulating Overshots
American Rock Bit Wrenches
American Milling Shoes
American Flexible Coupling for Rock Bit Lubricators
American Steel Tool Houses
American Forged Steel Wall Hooks
American Rock Bit Breakout Blocks
American Rock Bit Cone Fishing Sockets
American Paraffin Bits
American Female Die Nipples
American Tapered Taps
American Forged Steel Subs
American Rotary Shoes
American Cone Fishing Baskets
American Steam Lubricators
American Side Tracking Mills
American Combination Reverse and Throttle Levers
American Rock Bit Lubricator Wash Pipe Attachments
American Rotary Milling Tools
American Myracle Sucker Rod Sockets
American Surface Bit Blades for Rock Bits
American Drill Pipe Float Joints

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PREPAREDNESS

THE Navy is the mobile, the quick moving section of American defense. At the slightest indication of trouble a ship or a fleet is rushed to the scene.

The Portable Pumping Unit is the "navy" of the GASO line. It also is dispatched to the scene at the slightest indication of trouble. Is there a break in the pipe line? The Portable Unit is rushed on its own trailer to take up the burden. Is water service required? The Portable Unit is ready to perform it. Wherever emergency or semi-permanent pumping is required, the Portable Pumping Unit is at hand to furnish it.

The immediate success and growing sales of the Portable Pumping Unit are the best indications of its usefulness.

May we send you further details?

GASO PUMP & BURNER MFG. CO.
Tulsa · Oklahoma

Capacities: 63 to 250 barrels at 800 to 275 pounds pressures; fully enclosed and self lubricating.

GASO PUMPS
for every oil industry need

A Proven Quick-Hardening Cement for Safe, Speedy Construction

QUIKARD CEMENT

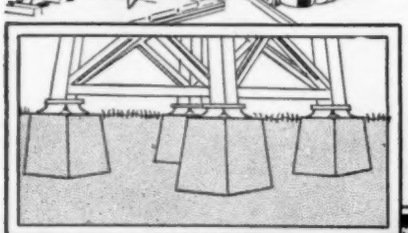
Use this reliable quick-hardening cement to speed up your oil-field construction work. Quikard is a specially-compounded and processed cement highly-refined and super-strong. It not only fulfills U. S. Govt. and A. S. T. M. standard specifications, but greatly exceeds all strength requirements, for Portand Cement. Above all, it develops—

28-Day Strength in 24 Hours

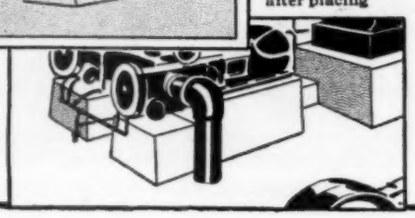
This means that properly-made Quikard concrete can be used with safety from 20 to 36 hours after placing—saving you from three to four weeks on all concrete work without sacrificing strength or permanence. And in addition to attaining 28 day strength in 24 hours, it develops increased strength thereafter!

Derricks set in concrete piers made with Quikard can be put in operation within 48 hours at the most. Floors, bases for machinery, powers, pumping equipment, booster stations, etc., made with Quikard can be used within the same length of time.

Quikard is *not* quick-setting. It takes its initial and final set normally allowing plenty of time for proper mixing, placing and finishing. It is worked just like Portland Cement, is unusually plastic and finishes quickly and easily. It produces an exceptionally waterproof concrete and is constantly uniform at all times. It forms a perfect bond with old or new Portland Cement concrete.



Derrick piers of QUIKARD will withstand heavy strain and stress within 24 hours after placing



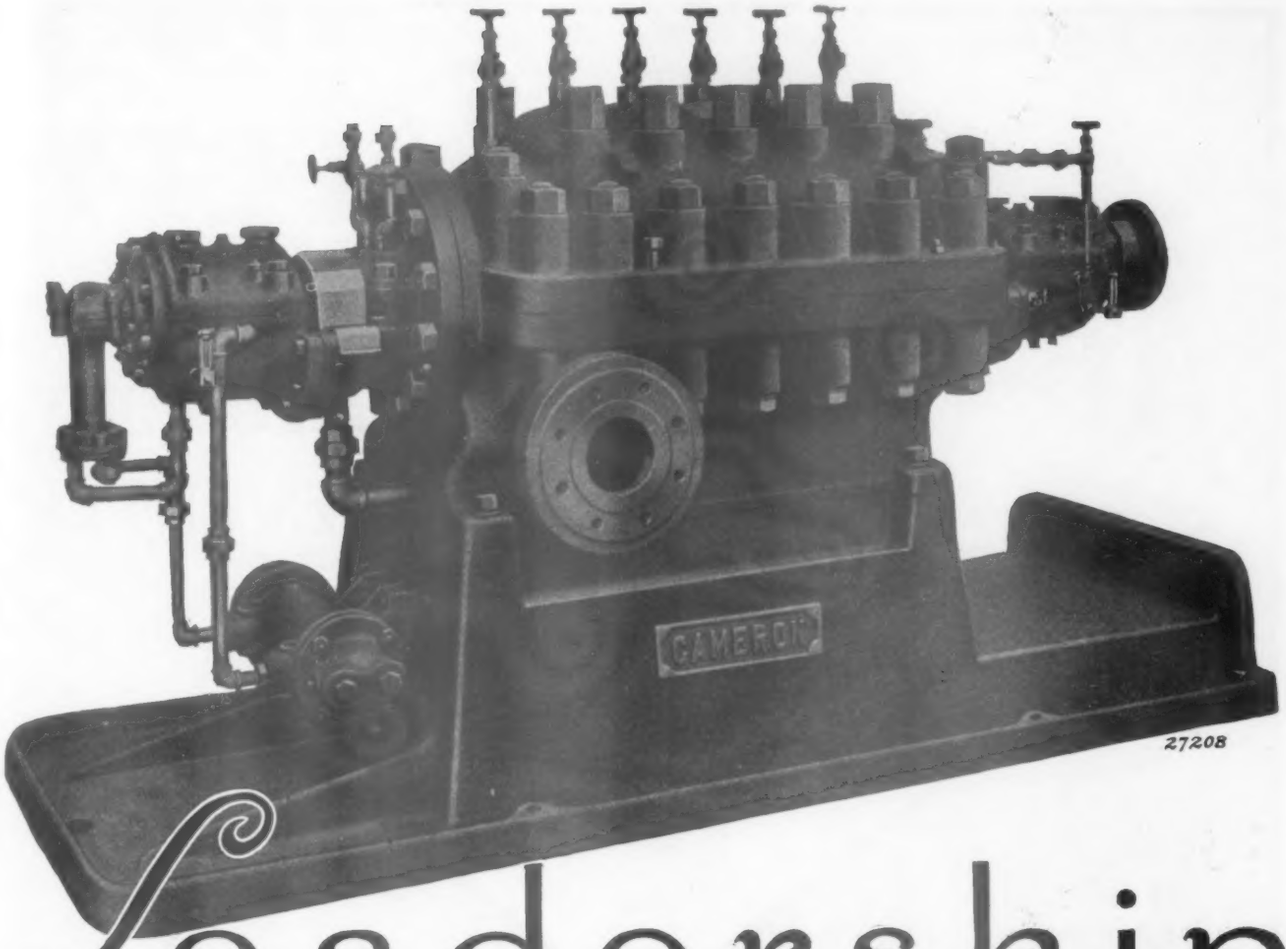
Bases made of QUIKARD Cement are ready for duty many hours sooner.

Write, Wire or Phone

If your dealer does not stock Quikard Cement, write, wire or phone us. Packed in durable paper bags, it may be shipped in mixed cars with Ash Grove Portland Cement or Oilmax Cement. Quikard Cement is the exclusive development of one of the oldest, most substantial and successful manufacturers in the cement industry!

Produced Only by
ASH GROVE LIME & PORTLAND CEMENT CO.
Founded 1882
General Offices: KANSAS CITY, MO.
District Sales Offices: OKLAHOMA CITY, OKLA.
Petroleum Building, Phone Maple 0642

8



Leadership

–more than 50% of the oil pumped through pipe lines by centrifugals is pumped by Camerons

THE centrifugal pump has made it possible to obtain an even greater volume of service from the nation's network of pipe lines. This compact, highly efficient pump will move oil more quickly and economically than the direct-acting type and with less stress on the line.

That Cameron has attained the leadership in this most important branch of the oil industry, is attested by the fact that more than 50% of the oil pumped through pipe lines by centrifugals is pumped by Camerons.

INGERSOLL-RAND COMPANY, 11 Broadway, New York City
A. S. CAMERON STEAM PUMP WORKS
Offices in principal cities the world over

Butte · Birmingham · Chicago · Cleveland · Dallas · Denver · El Paso · Los Angeles · Mexico City
New Orleans · Pittsburgh · San Francisco · St. Louis · Salt Lake City · Tulsa

297-DV

Ingersoll-Rand

A. S. Cameron Steam Pump Works

Say you saw it in The OIL WEEKLY

ABSOLUTE SAFETY with C.I.W. BLOWOUT PREVENTER

USE IT IN WELL MANIFOLD

DRILL THRU IT

Tested to Withstand 2000 Lbs. Pressure Per Sq. Inch

—One operator, using our smallest size preventer, suspended 72,000 lbs. of 3-in. drill pipe on the preventer rams and held a gauged well pressure of 1680 lbs.—WITHOUT A LEAK.

—Gives absolute safety in setting.

—Permits thorough washing before bringing in.

—By using our drilling blowout preventer as part of a well manifold you are able to leave drill stem in the hole suspended on preventer rams—eliminating dangerous removal of drill stem under pressure.

—For additional information on the use of this tool while drilling or as a part of well manifold—

WRITE OR WIRE

CAMERON IRON WORKS

MFGRS. OF OIL WELL SUPPLIES & FISHING TOOLS

HOUSTON, TEXAS

Say you saw it in The OIL WEEKLY

Texas City, Industrial Port

—creating progress!

Texas City Sugar Refining Co.
Boat Loading at Compress - Texas City.
Mallory and Morgan Steamers at Texas City to discharge and load.
Homes in Texas City

—and here's a part of the story:

$1,000,000 Pier Improvement authorized, including new pier 120 x 1180 feet; new 1000 foot electrically operated grain conveyor and new concrete warehouse facilities.

$500,000 Improvement Program by Texas-Gulf Power Company now in progress.

$150,000 new School Building now under construction.

$100,000 new City Hall under construction.

6,000,000-barrel oil storage capacity.

$5,000,000 Shipside Sugar Refinery.

5,500,000 pounds capacity raw sugar bin; 175,000-bag refined sugar warehouse; 1,250,000 pounds daily sugar refining capacity; 40,000-bag raw sugar warehouse.

500,000-bushel grain elevator.

215,000 feet spur trackage serving wharfage and industries.

Tracked dock aprons; oil loading and discharging piers with tank farm connections; high density cotton press; Monorail conveyor systems; shipside warehouses, elevators and trackage.

Served by three large railway systems—Gulf, Colorado & Santa Fe; Missouri - Pacific; Missouri, Kansas & Texas.

Pure artesian water. Modern schools, churches, whiteways, streets, homes and progressive citizens.

—*More Dependable Electric Power* has been a spur to this development and an aid to its achievement.

Another record cargo!

The tanker Tamiahia departed from Texas City on Sunday, March 4th with 130,600 barrels of crude oil, drawing 31.3 feet at zero tide!

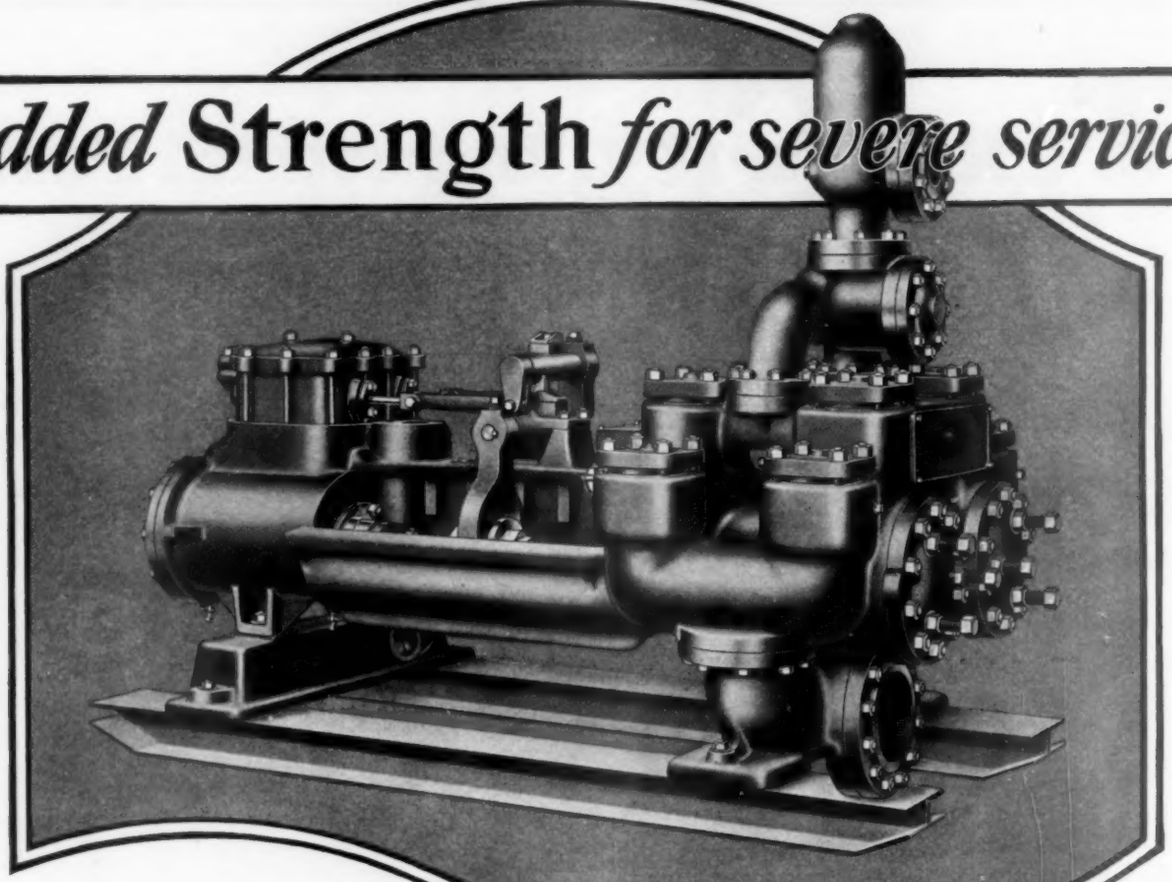
TEXAS GULF POWER COMPANY

General Offices: Fort Worth Club Bldg., Fort Worth, Texas

Living conditions in Texas City are ideal

Say you saw it in The OIL WEEKLY

added Strength *for severe service*



for rotary drilling and oil line service. 14x7¼x14.

Modern deep well drilling demands a pump with tremendous strength and power.

The GARDNER-DENVER Super-Booster is especially designed for this heavy slush duty. The divided fluid end, with each fluid cylinder a separate casting, is directly responsible for the great strength and durability of this pump.

Normal working pressure 1500 pounds. Steam pressure 225 pounds. Also made for power drive. Send for Bulletin P-32.

"Quality Builders for Over 65 Years"

GARDNER-DENVER COMPANY

Quincy, Ill. Denver, Colo.

Branch Offices Throughout the World.

OIL COUNTRY DISTRIBUTORS

Alamo Iron Works, San Antonio, Texas
Atlas Supply Co., Muskogee, Tulsa and Fort Worth.
C. F. Camp Co., Tulsa, Okla.
Kirk W. Eichelberger, Rialto Bldg., San Francisco, California.
Emsco Derrick & Equipment Co., 6811 S. Alameda St., Los Angeles, Cal.
Haywood-Williamson, Shreveport and El Dorado.
F. W. Heitmann Co., Houston.
International Supply Co., Stores in all Principal Mid-Continent Fields.
Norvell-Wilder Hardware Co., Beaumont, Houston and Fort Worth.
The Republic Supply Co. of California, Stores in all Principal California Oil Fields.

GARDNER GOVERNORS PUMPS COMPRESSORS

GARDNER DENVER

ROCK WAUGH DRILLS

Say you saw it in The OIL WEEKLY

A POWERFUL AND DEPENDABLE ALLY TO OIL FIELD DEVELOPMENT

THE WICHITA "OIL FIELD SPECIAL"
At home among the derricks

The only 3-Ton Truck especially built for the hard work of heavy oil field hauling – under conditions as they are – whether good or bad – is

The Wichita "OIL FIELD SPECIAL"

A Trade-Mark known around the world where motor trucks are used.

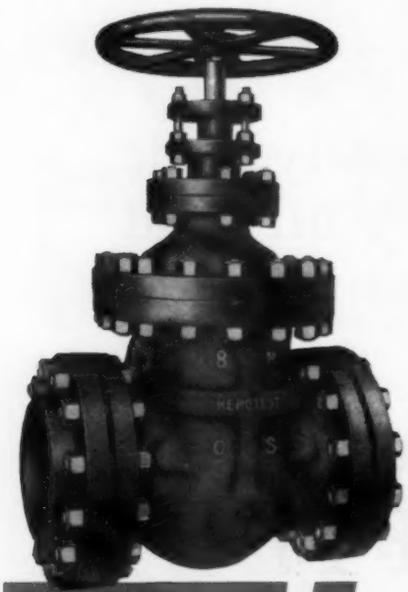
WRITE FOR FURTHER INFORMATION

Upon request, we will be glad to send our new, fully illustrated book describing the "Oil Field Special" in detail to anyone interested in oil field transportation. It shows the whole truck—unit by unit. Ask for your copy today.

WICHITA FALLS MOTOR COMPANY

J. A. Kemp, President Wichita Falls, Texas

Say you saw it in The OIL WEEKLY



KEROTEST

MEANS KEROSENE TESTED

Like the mark "sterling" on fine silverware Kerotest has become, on sheer merit alone, a mark of distinction on oil field valves throughout the world.

This famous trademark is compounded from the words—Kerosene tested—a standard test which has been adopted exclusively by this Company.

It is the most severe test ever applied by a valve manufacturer. It consists of subjecting each Kerotest Valve to Maximum Test pressure for 24 hours with Kerosene as the testing liquid. Only a perfect casting will pass this severe test.

A member of the Pittsburgh Testing Laboratory—an independent inspecting agency—witnesses the test on each valve and a certificate of their inspection is issued to the customer on every Kerotest Valve purchased in the oil fields.

That is why Kerotest enjoys the confidence of experienced oil men throughout the petroleum world—they know by this certificate that every Kerotest has qualified for the wildest well.

Kerotest Manufacturing Co.
PITTSBURGH PENNA.

Manufacturers of Drilling Valves, Refinery Valves, Flow Line Valves and Heavy Duty Fittings for Oil Fields.

Say you saw it in The OIL WEEKLY

MAKING GOOD IN THE FIELD MAKES FRIENDS FOR WHEELING!

Wheeling Inspection is thorough. The accuracy of threads on pipe and couplings is systematically checked against working gauges. Each individual threaded end and each coupling is checked and verified with a gauge. No expense has been spared to insure a high standard of perfection for all products.

Inspection Keeps Pace with Production

"From Mine to Market"

WHEELING practice is to give as much attention to the inspection of its products as to their manufacture.

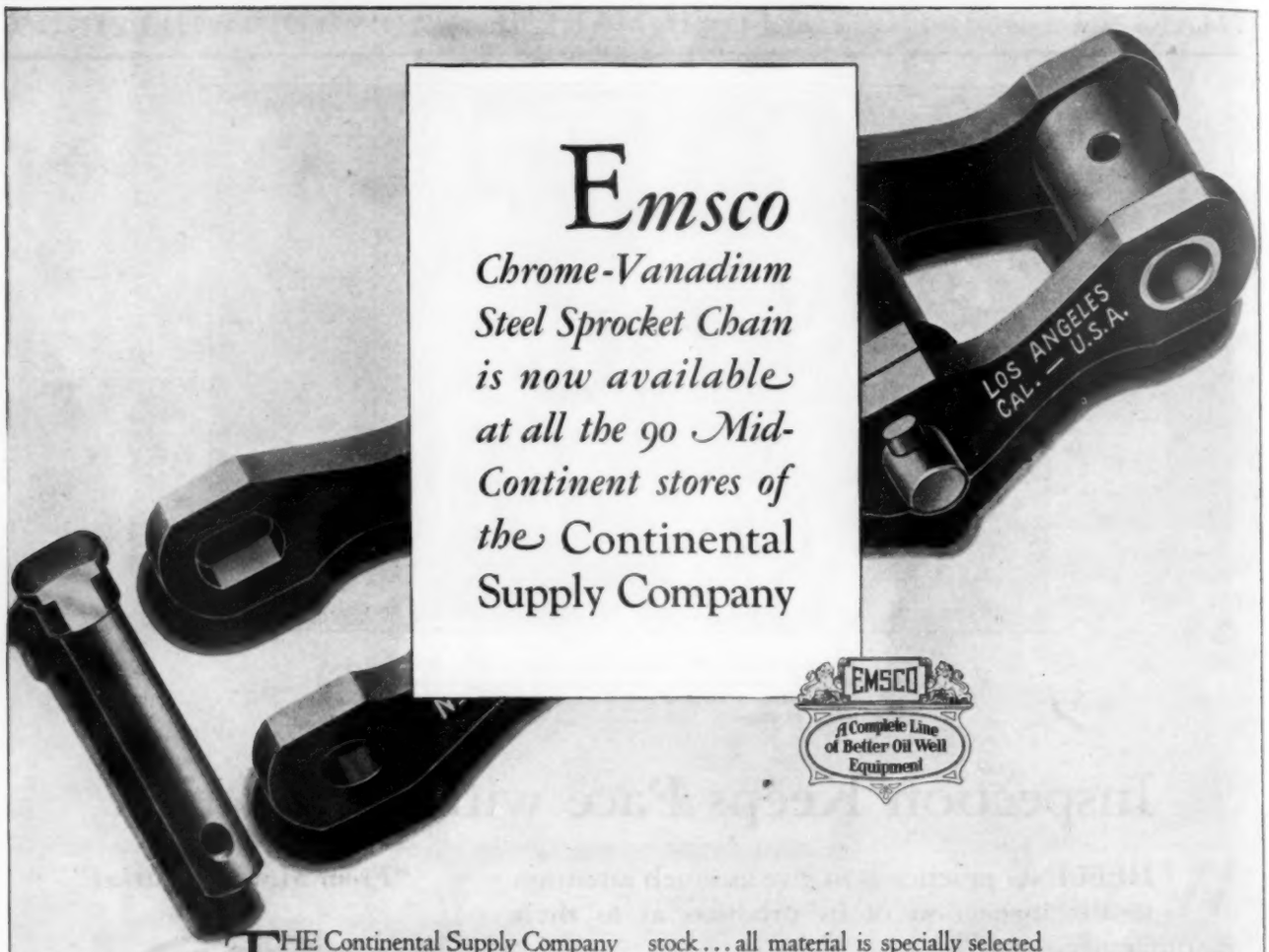
This policy produces results in the field such as this,—1,494,240 feet of Wheeling (LaBelle) Line Pipe used by one company in 12 months, every foot, every joint 100% satisfactory.

Examples of this kind, multiplied many times, are reasons why drillers favor Wheeling Casing, Tubing, Drive and Line Pipe today more than ever before. Let Wheeling pipe get down to business for you.

WHEELING STEEL CORPORATION, WHEELING, WEST VA

WHEELING

CASING · TUBING · LINE PIPE



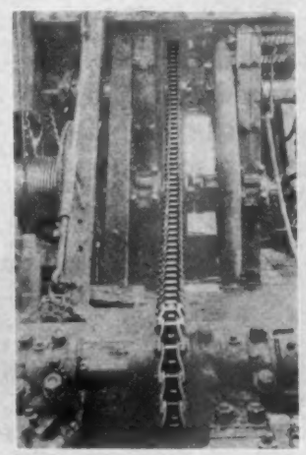
Emsco

Chrome-Vanadium Steel Sprocket Chain is now available at all the 90 Mid-Continent stores of the Continental Supply Company

EMSCO
A Complete Line of Better Oil Well Equipment

THE Continental Supply Company has recently been appointed Mid-Continent distributors of Emsco Chrome-Vanadium Steel Sprocket Chain — the chain with a longer life. You can now obtain Emsco sprocket chain at any one of the ninety stores operated by Continental.

Emsco Chrome-Vanadium Steel Sprocket Chain is unquestionably the strongest chain made... Bushings and rollers are machined from solid stock... all material is specially selected for toughness, tempering and heat-treating qualities. Emsco chain pins are specially designed, accurately machined, and driven into place. Original type upset locking pins are locked in place, instead of using the old-fashioned cotter pin.



Not a single repair to this Emsco sprocket chain during 4,000 feet of hole drilled, with two sidetracking jobs!

\+ + +

Write us, or inquire at any Continental Supply Store for details of Emsco Chrome-Vanadium Steel Sprocket Chain.

EMSCO STEEL EQUIPPED WELLS ARE SAFE

EMSCO
Derrick & Equipment Company
Los Angeles, California
Houston, Texas
New York Office: 150 Broadway
Factory Branch at Tulsa

Yellow Strand
Rotary Drilling Lines

It's strength you need in a Rotary Line—strength combined with the ability to bend around the sheaves of the crown block without injury.

It is this valuable combination of qualities that causes Yellow Strand Rotary Lines to last longer and be so economical.

The wire for Yellow Strand is drawn to our special specifications in Europe and imported by us. No wonder Yellow Strand Rotary Lines are so good!

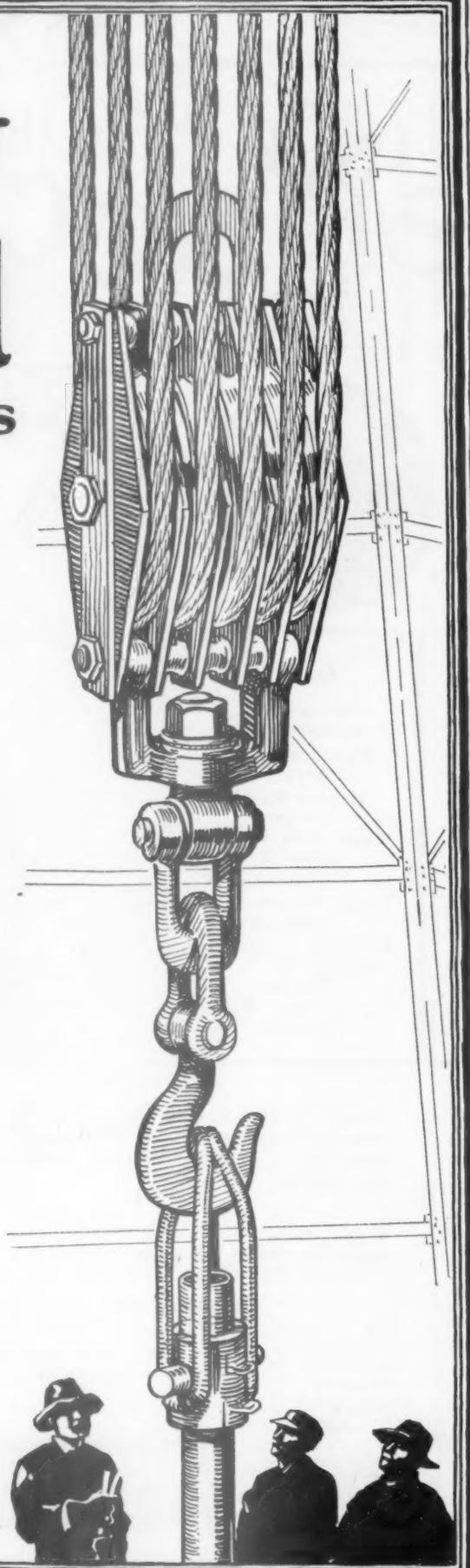
Ask for Catalog 41

Broderick & Bascom Rope Co.
St. Louis, Mo.

Branches: 68-70-72 Washington St., New York City and Seattle, Wash.

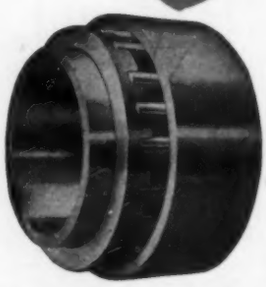
Factories: St. Louis, Mo., and Seattle, Wash.

LR551



Say you saw it in The OIL WEEKLY

SAFETY ~ SPEED and SMOOTHNESS



Used By

American Well & Prospecting Co.
Boykin Machinery & Supply Co.
Hopper Machine Company
Latex Iron & Steel Works, Inc.
Lee C. Moore & Co.
Lucey Manufacturing Company
Oil Well Supply Co.
Portable Rotary Rig Company
Star Drilling Machine Company

Used For

Traveling Blocks
Crown Blocks
Reverse Clutches
Rotary Drives
Gear Drives
Drilling Machines
Winches
Hoists
and other heavy duty Oil Field equipment.

In any oil field equipment which has been properly designed to handle heavy loads, the manufacturer cannot put a bearing better than American Heavy Duty Type "C" Roller Bearings. They are superior, engineeringly considered, from every point of viewing heavy duty drilling problems.

They protect the crew's safety, promote speed and produce smoothness in operation. They make the whole job easier for derrick, tools and pipe as well as for the driller.

Having these heavy duty Bearings on the job when the equipment is new makes everything last longer—and how: ***The first traveling block equipped with these bearings is still in service with the same bearings.***

The Standardized Bearing for the Oil Industry
AMERICAN HEAVY DUTY TYPE C

Specially Designed For Oil Country Service
AMERICAN HEAVY DUTY TYPE C

AMERICAN ROLLER BEARING CO.
PITTSBURGH, PENNA.

Say you saw it in The OIL WEEKLY

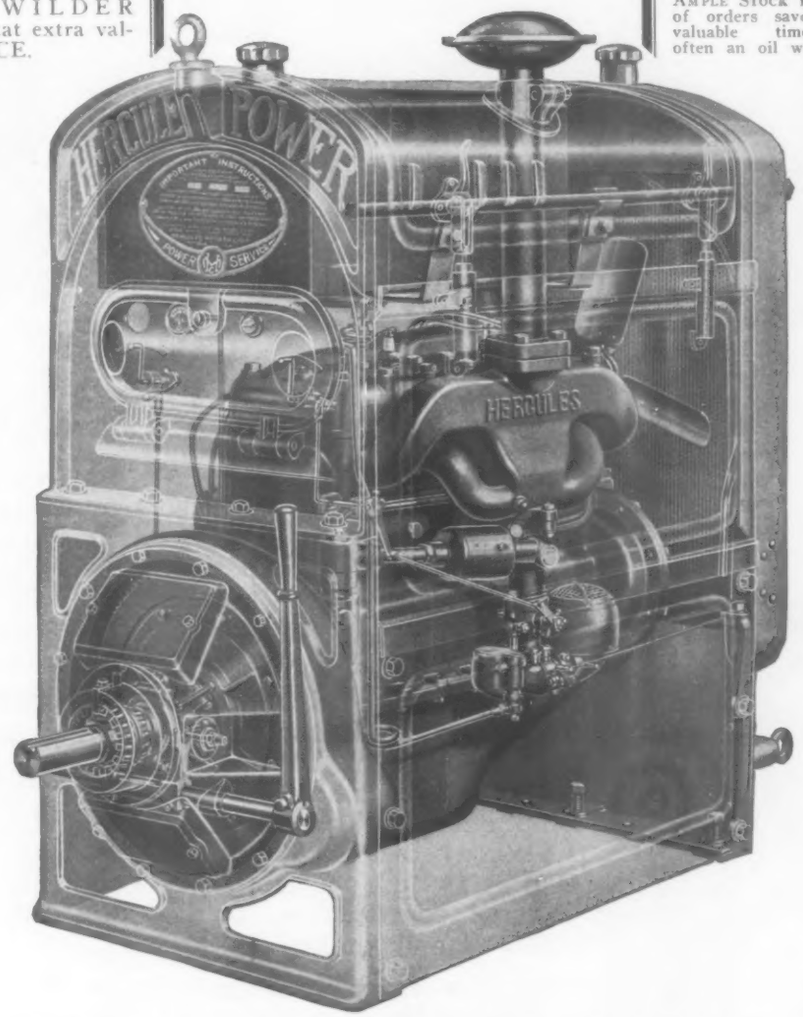
NORVELL WILDER HARD-WARE CO.
QUALITY AND SERVICE

That extra value SERVICE

There is no business on earth where service means more than in the oil business. It means rigs kept running...bringing in the oil well ahead of competition...MONEY SAVED. With every purchase from NORVELL WILDER there goes that extra value...SERVICE.

ADVISING
the right machine or tool for the need

EACH WEEK, one or more of the many reliable machines and tools handled by NORVELL WILDER will be featured in advertising messages. NORVELL WILDER MEN know these lines thoroughly. They know the oil business. The reputation of this organization is based on unbiased advice always...fitting the machine or tool to the need. AMPLE STOCK for *instant* filling of orders saves the customer valuable time...money...and often an oil well.



For 17 years, Norvell Wilder has been serving

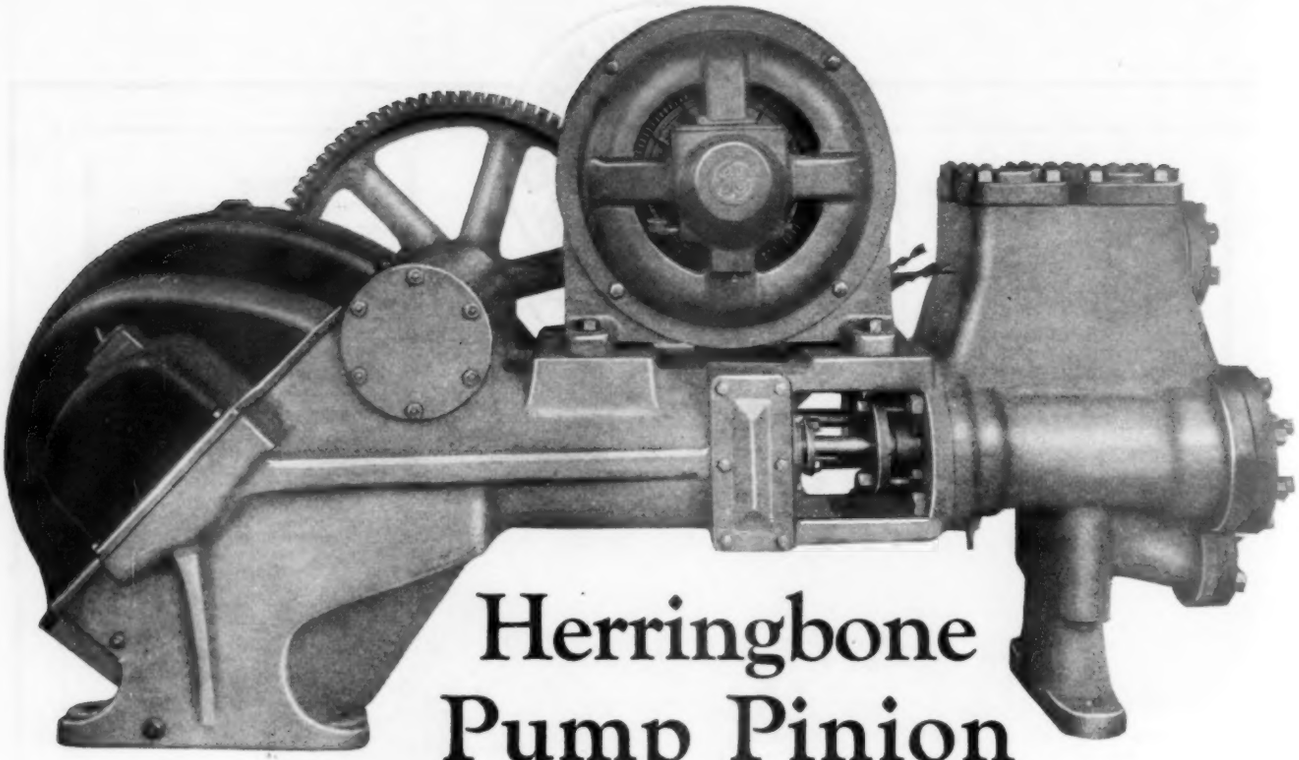
the oil man in the greatest oil district in the world—

WITHIN A 600-MILE RADIUS of any of the four principal Norvell Wilder branches is produced one-half of the oil of the world . . . . an area regarded by geologists as the source of the greatest future supplies of petroleum . . . . an area producing nearly $300,000,000 worth of oil a year.

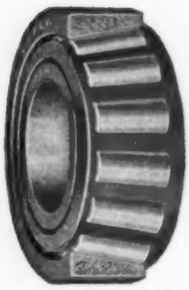
Dependable service, year in and year out in this vast industry, has brought Norvell Wilder an ever-increasing number of steady customers . . . . customers who appreciate the money-saving value of stability, cheerful service, and fair dealing.

NORVELL WILDER Hardware Company

BEAUMONT HOUSTON SHREVEPORT FT. WORTH



Herringbone Pump Pinion Protected by Timkens



The successful operation of herringbone pinion and gear sets permits no compromise with thrust. Particularly in driving a pump like the Gaso Duplex, designed for pressures up to 1400 pounds per square inch. To assure the necessary endurance under extreme conditions, the Gaso Pump & Burner Mfg. Co., of Tulsa, selected Timken Bearings for the drive pinion mounting.

Not only is the power-waste of friction thus overcome, but heaviest thrust and shock and radial loads are permanently guarded against. Continuous heavy operation does not affect pinion alignment and smoothness. Merely the most occasional lubrication preserves the rigidity, capacity and precision made possible by Timken tapered construction, Timken *POSITIVELY ALIGNED ROLLS*, and Timken electric steel.

This exclusive Timken combination underlies the fact that more Timken Bearings are used in the oil fields than all other anti-friction makes combined.

THE TIMKEN ROLLER BEARING CO., CANTON, OHIO

TIMKEN

Tapered

ROLLER BEARINGS

Say you saw it in The OIL WEEKLY

When Bailer Bails are Jarred in Two

The HINDERLITER BAILER TUBE SOCKET is used to fish out of the hole, in one operation, bailers with broken bails.

The eccentric guide bowl compresses broken bail or bails.

Concave body effects passage through broken bail or bails into bailer.

Slips engage inside walls of bailer tube which is encased by the guide bowl.

HONEST TOOLS

HINDERLITER

Say you saw it in The OIL WEEKLY

Leaps ahead in A·P·I· rod development

Frankly, the A. P. I. Specification Sucker Rod requires the most difficult and painstaking operations in machining, gauging and finishing. No operation in oil field equipment manufacturing demands such exacting accuracy.

But fortunately we have for years been preparing for the task. When the decision to place A. P. I. Sucker Rods on production was made, we had the facilities, experience and initiative to accurately produce them without fear of imperfections in any phase of manufacture.

Axelson

AXELSON MACHINE COMPANY
P. O. Box 337, Los Angeles.
Tulsa, St. Louis, New York City
Mid-Continent Distributors:
FRICK-REID SUPPLY CO.
Eastern Distributors:
FRICK & LINDSAY CO.

THERE IS NO ECONOMICAL SUBSTITUTE FOR QUALITY

A. P. I.

AXELSON SUCKER RODS

* *This Split Liner is an exclusive feature of the PERFECTION.*

Like peeling a banana ....

the core comes out *whole* when you use

The PERFECTION CORE BARREL

Cutter Heads exchanged by any distributor

OIL CITY IRON WORKS
SHREVEPORT, LOUISIANA
Exporters: Continental Well Supply Co., 74 Trinity Place, New York City

Distributors:

Wilson Supply Company
Houston, Texas
Hercules Supply Company
Dallas, Texas
Hercules Supply Company
Vernon, Texas
Hercules Supply Company
Pyote, Texas
Continental Supply Company
Duncan, Okla.
Continental Supply Company
Healdton, Okla.

Oklahoma Office:
2 East California Street,
Oklahoma City

What Happens?

—When Your Machinery Starts and Stops

Much of the wear and tear on machinery comes from starting and stopping. For then the fluid film of lubrication is broken, ***and unless you are using the right lubricant,*** friction takes a heavy toll.

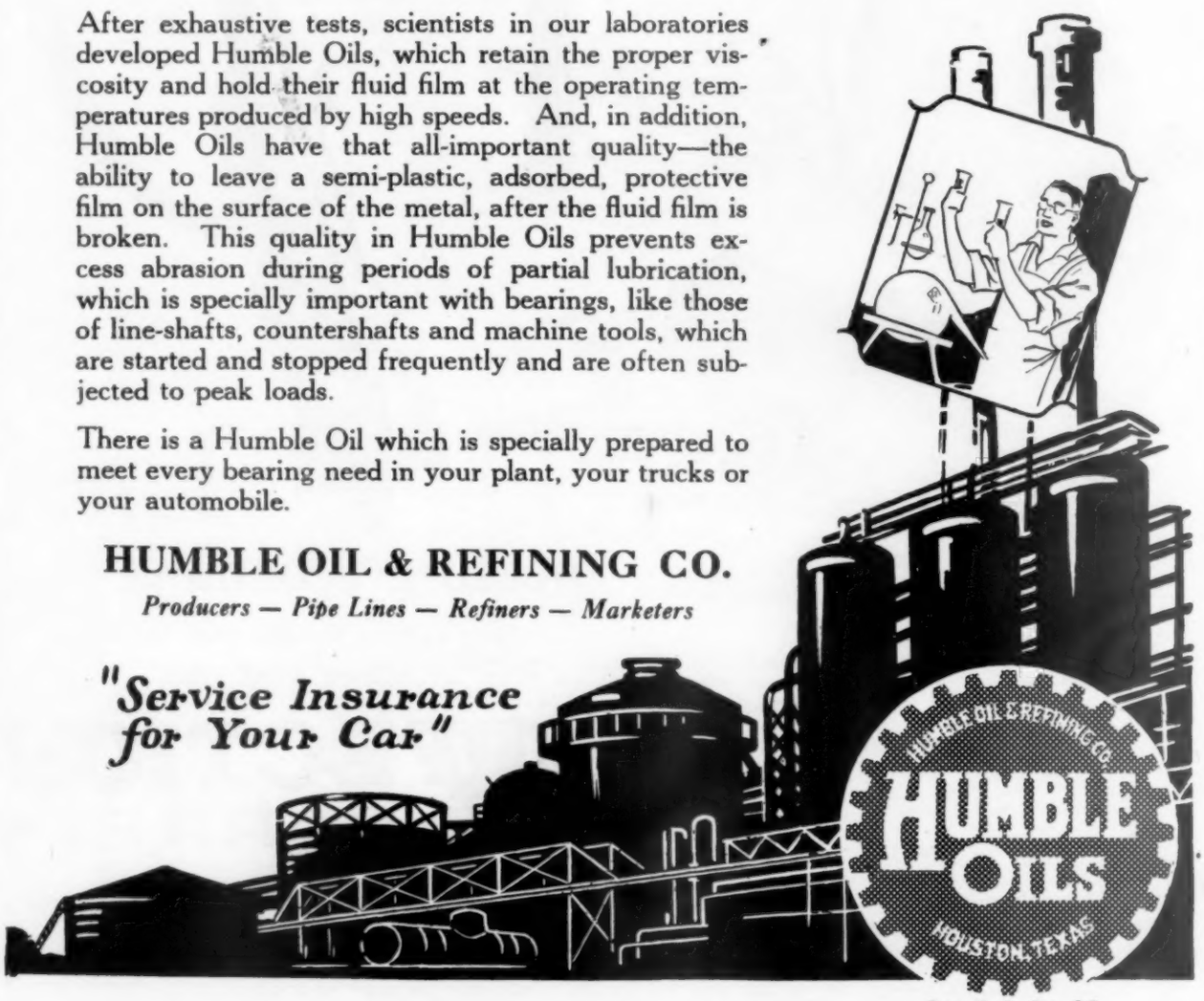
As long as the fluid film is intact, the quality of the lubricant is not so important—but when the fluid film breaks, as it does every time you start and stop a machine—the quality of the lubricant supplied to the bearings is of prime importance, if friction is to be kept from doing serious damage.

After exhaustive tests, scientists in our laboratories developed Humble Oils, which retain the proper viscosity and hold their fluid film at the operating temperatures produced by high speeds. And, in addition, Humble Oils have that all-important quality—the ability to leave a semi-plastic, adsorbed, protective film on the surface of the metal, after the fluid film is broken. This quality in Humble Oils prevents excess abrasion during periods of partial lubrication, which is specially important with bearings, like those of line-shafts, countershafts and machine tools, which are started and stopped frequently and are often subjected to peak loads.

There is a Humble Oil which is specially prepared to meet every bearing need in your plant, your trucks or your automobile.

HUMBLE OIL & REFINING CO.

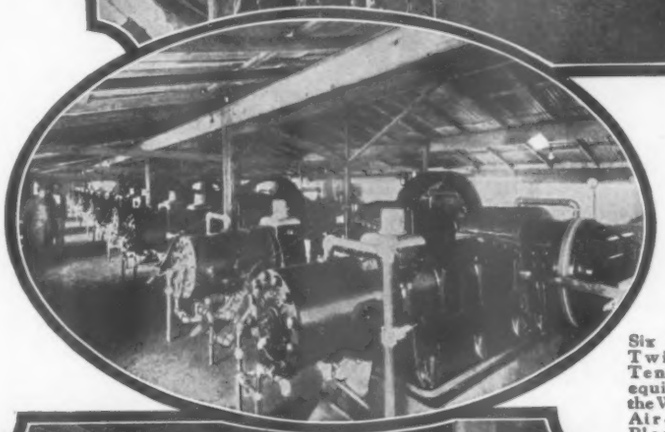
Producers — Pipe Lines — Refiners — Marketers



"Service Insurance for Your Car"

Reg. U. S. Pat. Off.

In this Air-Gas Lift Plant of the Magnolia Petroleum Co. in the Earlsboro, Seminole field there are 14-165 H. P. Bessemer Twin Type Tens.



Six Bessemer Twin Type Tens are the equipment in the Wadsworth Air-Gas Lift Plant of the Mid-Continent Petroleum Corporation.

Eighteen 165 H. P. Bessemer Twin Type Tens in the Carter Oil Co's Stewart gasoline plant, Seminole field.

The four Bessemer Twin Type Tens in a plant of the Wilcox Oil & Gas Co., Seminole, Okla.

Running Time

WHEREVER Bessemer Compressors are found in service, there you will invariably find running records of 99%+; records which give striking proof of their Bessemer performability, whether in gasoline plants, air-gas lift plants or booster stations.

Once a Bessemer is put to work it stays on the job, delivering the utmost in compressor service year after year. It is for this reason that they represent the soundest compressor investment that you can make—judged by mechanical or compressor efficiency, maintenance expense or depreciation. Thousands of installations are constantly demonstrating that Bessemers can be relied upon to deliver this profitable running-time-plus, consistently.

THE BESSEMER GAS ENGINE COMPANY
62 York Street ∴ Grove City, Pa.

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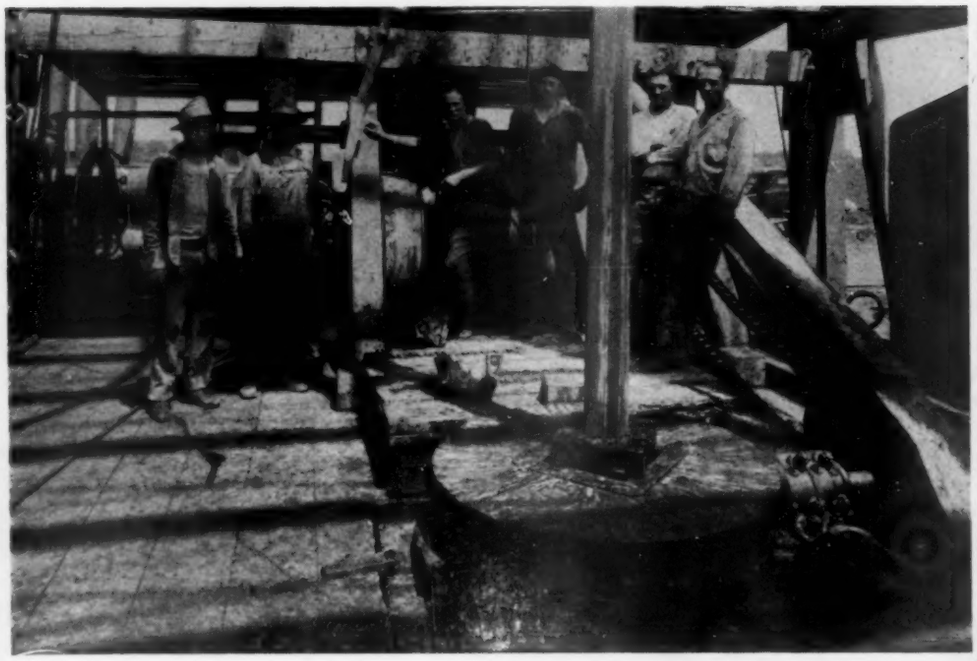

2800 FEET OF HOLE IN 24 DAYS WITH THIS TITUSVILLE ROTARY

In Earlsboro, Oklahoma, Lippa and LeBosquet, Inc., started this hole for the Continental Oil Company on July 17th, and by August 10th, had drilled 2800 feet of hole—an average of over 116 feet per day.

Another typical example of Acme Rotary performance and speed—the kind of proved performance that has firmly established Acme's unexcelled reputation for profitable hole making

Your Continental Supply Man will be glad to show you the exceptional construction and design of the Titusville Rotary. See him next when in the market for a rotary outfit.

The TITUSVILLE IRON WORKS Co.
TITUSVILLE - PENNA.

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Acme Boilers
Single and Twin
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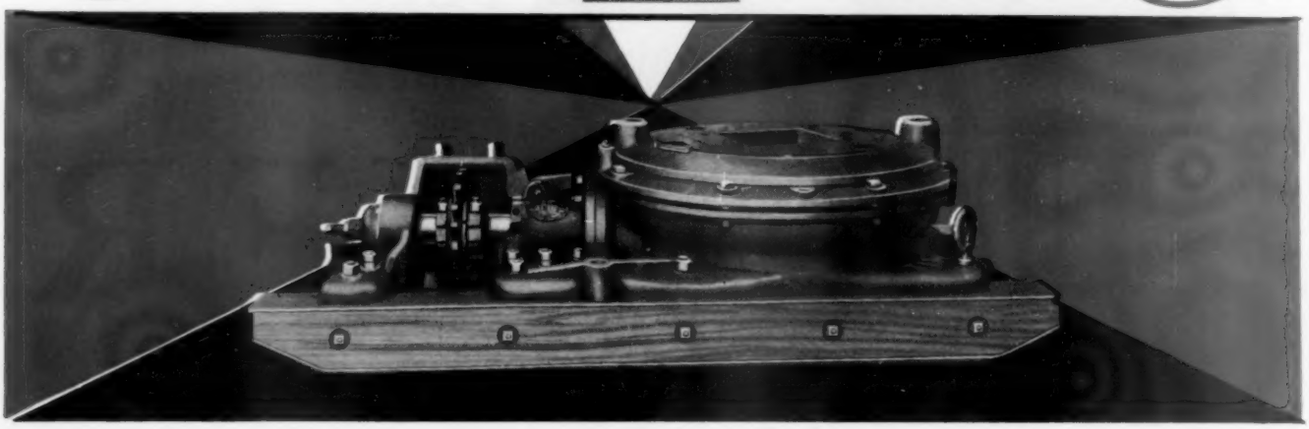

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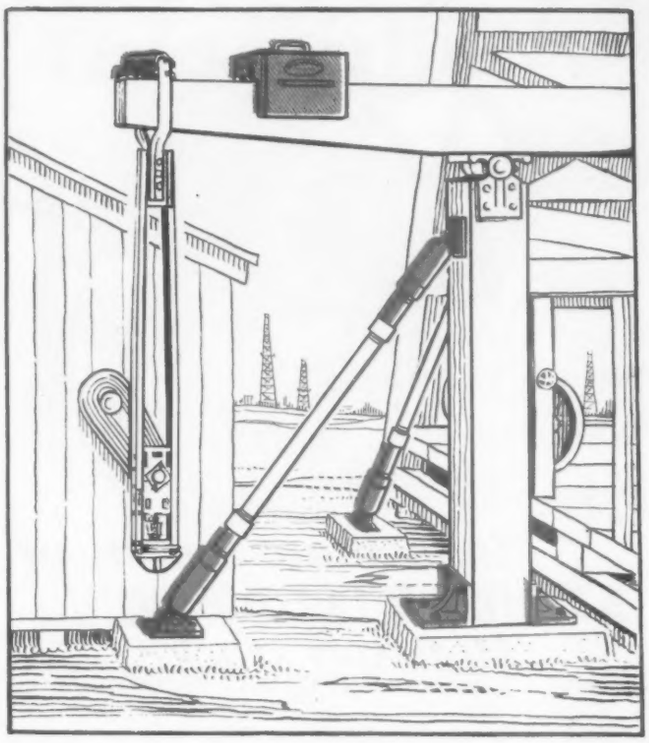
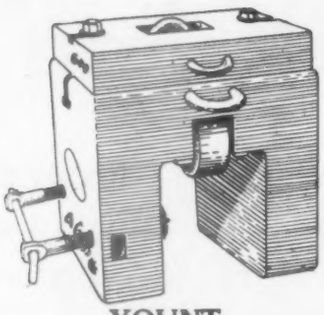
Dreadnaught Products
For Pumping Wells





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PUMPING COUNTER-WEIGHT

A patented counter-balance of variable weight for any walking beam. Clamping screws anchor it securely, but when these screws are loosened the device may be rolled to the center for pulling rods and tubing, or to any new and more advantageous position on the beam. As indicated in the photograph, weight blocks may be added as desired, thus attaining the maximum in a smooth, easy pumping stroke.

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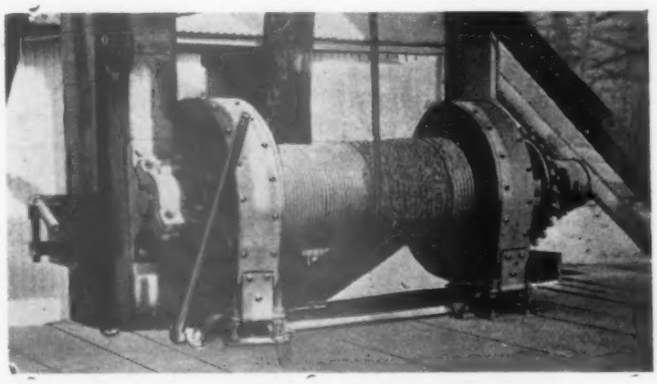
OSCILLATING STIRRUP BEARING

This Universal Bearing co-ordinates walking beam and crank. Eliminates stress, strain and friction in either drilling or pumping operations. Easily installed. Electric steel and good for a life-time of service.

Dreadnaught
TUBULAR SAMPSON POST BRACES

Built on the turnbuckle principle, with right and left hand threads to make it firm and taut. Very strong and rigid. Hinged to permit setting at any angle. Taper pins in the hinged joints to take up all play. Simple, easily assembled and adapted to every installation.



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PUMPING HOIST

A marked improvement over rigs ordinarily used for bailing and swabbing and for handling sucker rods, tubing or casing. Very strong and simple. Fast and safe in action. The wire line drum is heavily reinforced. Double 8-inch brakes. Shaft 4-15/16-inch diameter. May be used with any convenient source of power. Illustrated literature on request.

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BEAUMONT, TEXAS

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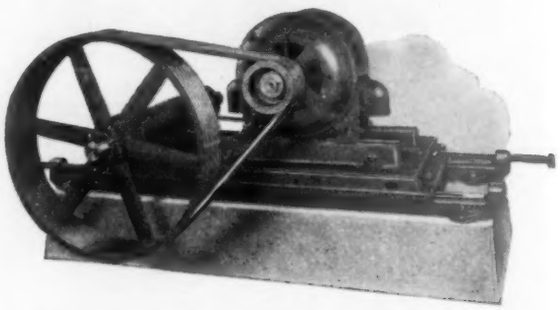
Oil Well Units

Complete Unit designed after exhaustive study of oil well requirements.

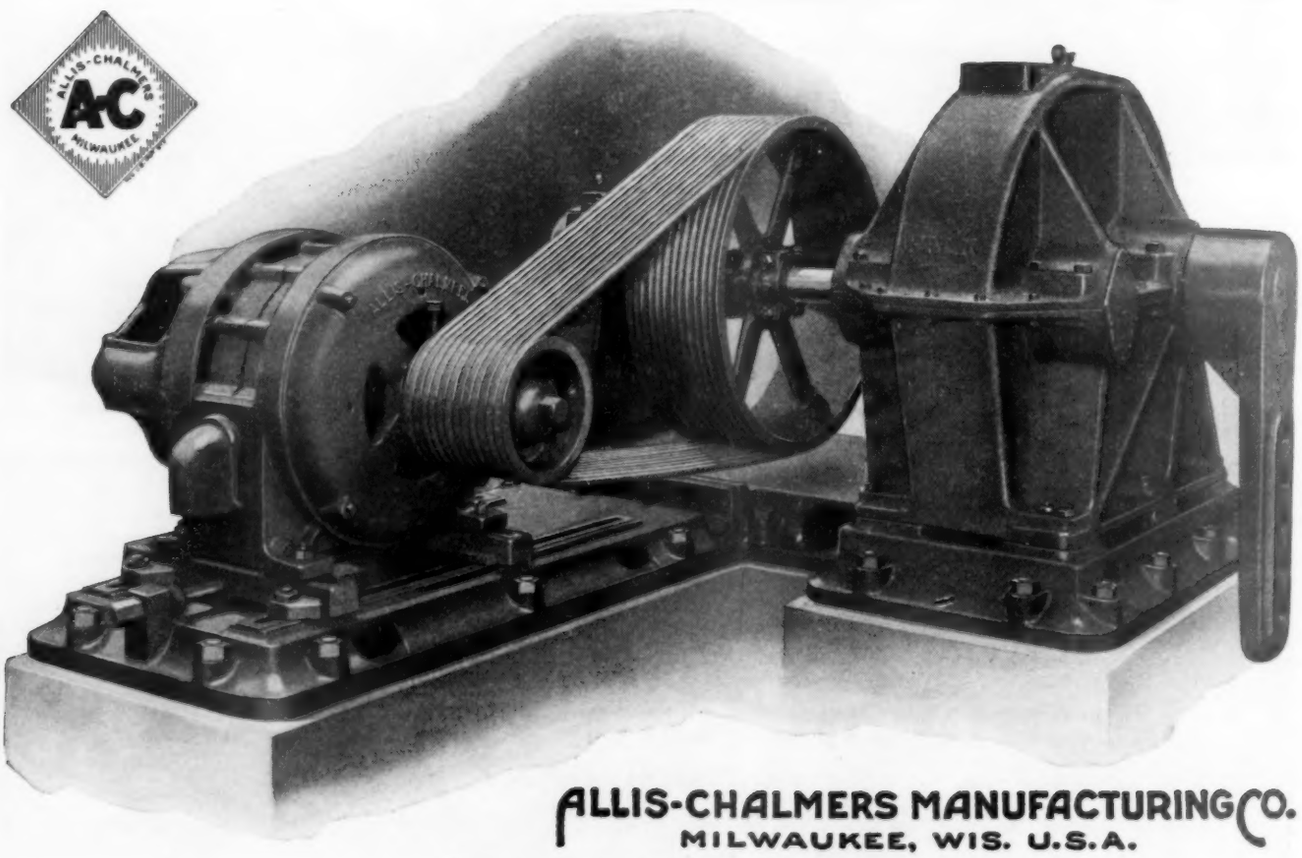
Speed Ratio changed in a few minutes at slight cost.

Complete Unit, including motor and controller furnished on one order with undivided responsibility.



Complete Allis-Chalmers Single Reduction Pumping Unit—Timken equipped.

Immediate Shipment from Tulsa and Houston stock



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Hydraulic Stop Cock

(Patented)

Sturdiness—strength beyond a question—simplicity—foolproof design—is clearly shown in these "all side" views.

FIRST COST YOUR ONLY COST

—unbreakable parts—no replacements

This is the "stop cock" that the oil field has long wanted. It has a longer life—requires no replacement of parts and can be kept in service longer than other types of plug valves. Ordinary valves or stop cocks seldom last throughout one installation—while in comparison and on an actual service test several BARSCO stop cocks have been put in use and reused on up to six well installation and are still in steady service at this writing.

Adapted for steam, water, gas, oil or air and especially for Rotary Slush Pumps.

Here are a few important BARSCO features:

(1)—Made in sizes of 1¼", 1½", 2", 2½" 3" and 4".
(2)—No grease to collect dirt, form scale or cause sticking.
(3)—Specially designed packing in both ends.
(4)—Fifteen (15) ton lift on core, 14" wrench, positive operation—no hammering.
(5)—One quarter turn of wrench to open and close.
(6)—Core (or plug) can't break or stick.
(7)—Made of special "BARSCO' steel—indestructible.
(8)—Pressure—2000 lbs., safety factor to meet all requirements.
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The BOVAIRD "GRIP" MAKES FRIENDS THE WORLD OVER FOR *BOVAIRD ELEVATORS and SPIDERS*

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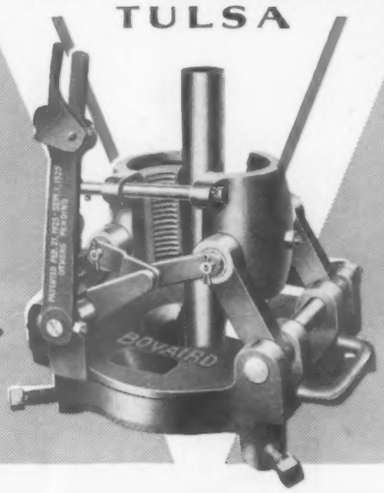

BOVAIRD GRIP TUBING SPIDER

ATORS *and* SPIDERS

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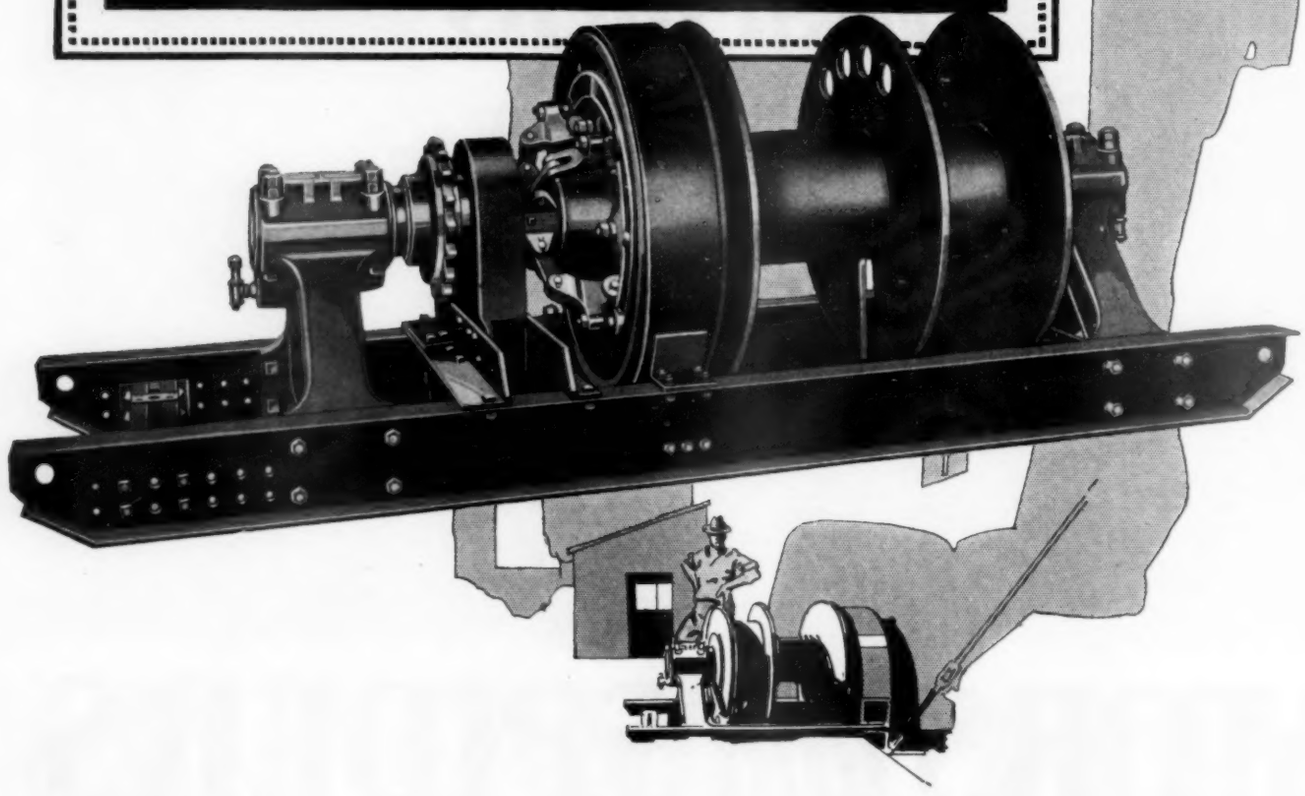
NATIONAL CHAIN DRIVEN SAND REEL

TYPE "J"

DESCRIPTIVE BULLETIN No. – 18 N ON REQUEST

THE NATIONAL SUPPLY COMPANIES



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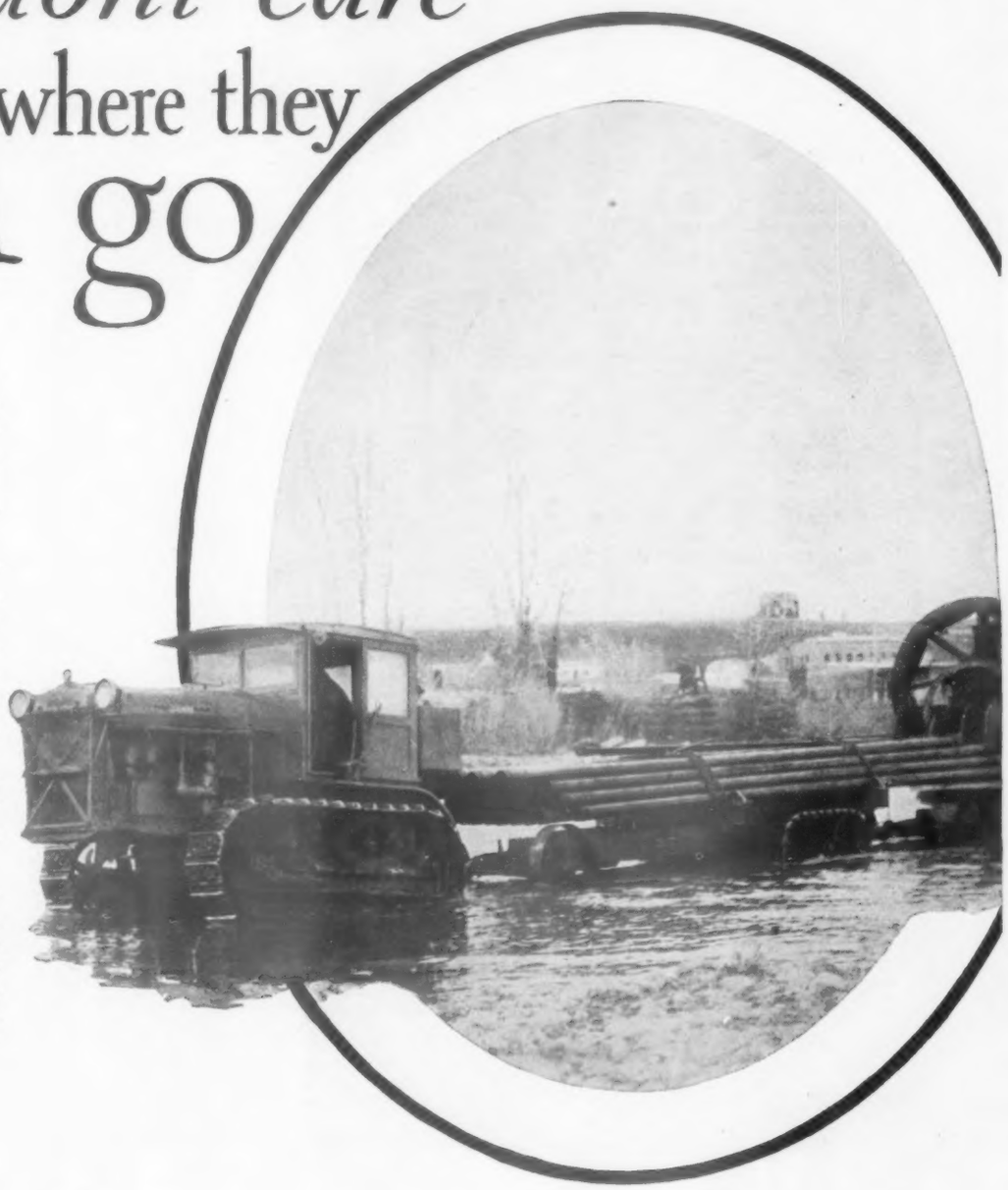
Athey Wagons *don't care* where they go



Put 10-ton loads on Athey Wagons—hitch them in train to a tractor—and they will follow wherever the tractor can go.

They haul bigger loads — which means fewer trips — over mud, bad roads or no roads at all—because their broad track bands make their own roads and the construction and anti-friction bearings make Atheys remarkably light running.

Tractors can haul bigger pay loads with Atheys. See your nearest Caterpillar Tractor Company dealer, or write direct for full information.

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Cable Address: "Trusswheel", Chicago
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Manufacturers of oil field equipment that must be dependably mounted, are rapidly standardizing on Athey Truss Wheel Wagons.

ATHEY TRUSS WHEEL WAGON
IT BRIDGES THE SOFT SPOTS

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Patented

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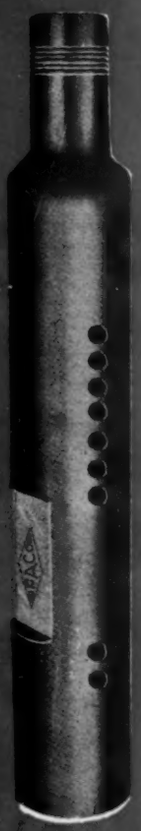

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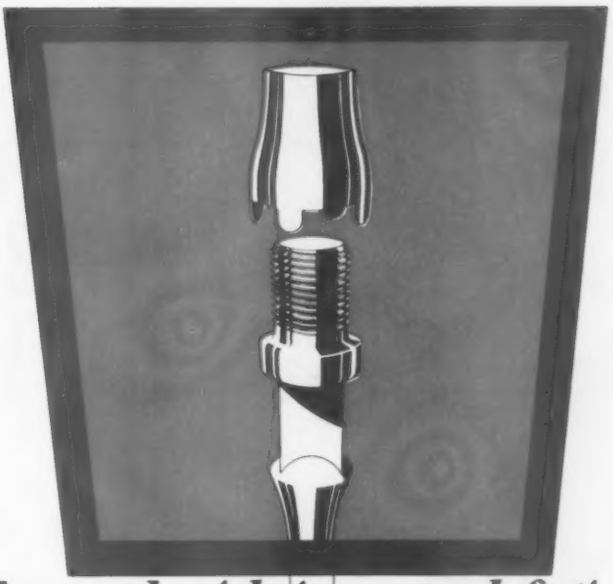

A new *sucker-rod with increased fatigue resistance-* *just 150 %*

99% of sucker rod failures are due to "fatigue fractures" sometimes called "crystallization."

Therefore a steel combining high physical strength and high fatigue resistance should make a good sucker rod.

Such a combination is Jones High Manganese Steel, and field results prove this to be true.

Jones High Manganese Steel is 10,000 to 40,000 lbs. per square inch stronger in physical strength, and its fatigue resistance from 50% to 400% greater than any other sucker rod we have tested.

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Toledo **Ohio**

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The LARKIN *Improved* SAND PUMP

the best pump for any job—no matter how tough

THE outstanding advantage of the Larkin Improved Sand Pump is its flexibility—in that it operates successfully at all depths, under all conditions. Under normal conditions it will bring out the sand and sediment in record time—equipped with the Regular Bottom.

But—for that tough job where the cavings have packed hard—there is the Bit Bottom. As its name implies, it is used for drilling and breaking the sand loose. It will break up the hard formations so efficiently, and pass the material through to the pump so quickly, that the pump may be operated at full capacity without being delayed to any extent—even by the worst conditions encountered. To be prepared for any job, no matter how difficult, get the Larkin and have it equipped with both the Regular Bottom and Bit Bottom to give better than ordinary cleaning-out service.

This Leader of the Larkin Line will clean out your wells quickly, thoroughly; it will last through years of hard service. Even more than when the Eastern fields were young, it is the most efficient sand pump on the market.

Sold by leading Supply Stores.
Send for Circular and Price List.

Made only by

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at BUTLER, PENNA.

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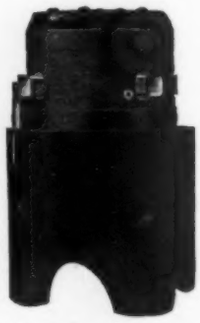
These extra fine bottoms give the LARKIN pumps real advantages



Regular Bottom

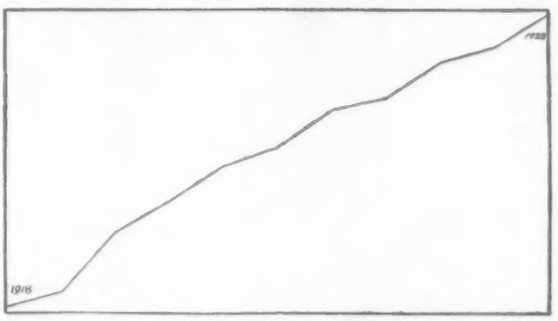
In the Larkin Regular Bottom, the legs are short, allowing the pump to rest as near the bottom of the hole as possible and still obtain the necessary suction to remove the greatest amount of sand and sediment quickly.

Bit Bottom

This Bottom is used for drilling and breaking the sand loose. Its chisel shaped design is unique, prevents sticking, and allows successful operation in tightly packed sands.

The Record of Williamsport's 10 Years' Growth in the Wire Line Business

has PROVEN that MEN BELIEVE IN SAFETY FIRST METHODS



—and a continuous never ending upward curve indicates that the TEL-FAX System of Certifying Grade—Strength has met with a widespread approval of the

WILLIAMSPORT WIRE Telfax Tape Marked Factory Certified LINE

Men who have to do with Wire Line have watched the development of this protective measure and day by day more and more Engineers and Superintendents have supported this Safety First movement by specifying and insisting upon using the only wire line that affords this definite protection.

You too may secure this added safety, more valuable than the price of the line, if you use Williamsport.

You may buy direct from the manufacturer or through any one of the scores of distributors located throughout America.

Start Now to Cut the Cost of Trouble

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Drilling Cable
Bull Rope
Cat Head Lines

Plain Laid Rope
Torpedo Lines

New Bedford Cable drills farther

Do you know that under many conditions the use of a manila drilling line is much the quicker and the more economical way to drill?

Also do you know that in many fields the New Bedford Manila Drilling Cable has for years been considered the standard, and represents the utmost in drilling efficiency?

If you are not now using them, try one and be convinced.

New Bedford Manila Bull Ropes, Cat Head Lines, Torpedo Lines, and Plain Laid Rope bear the same reputation for quality and durability.

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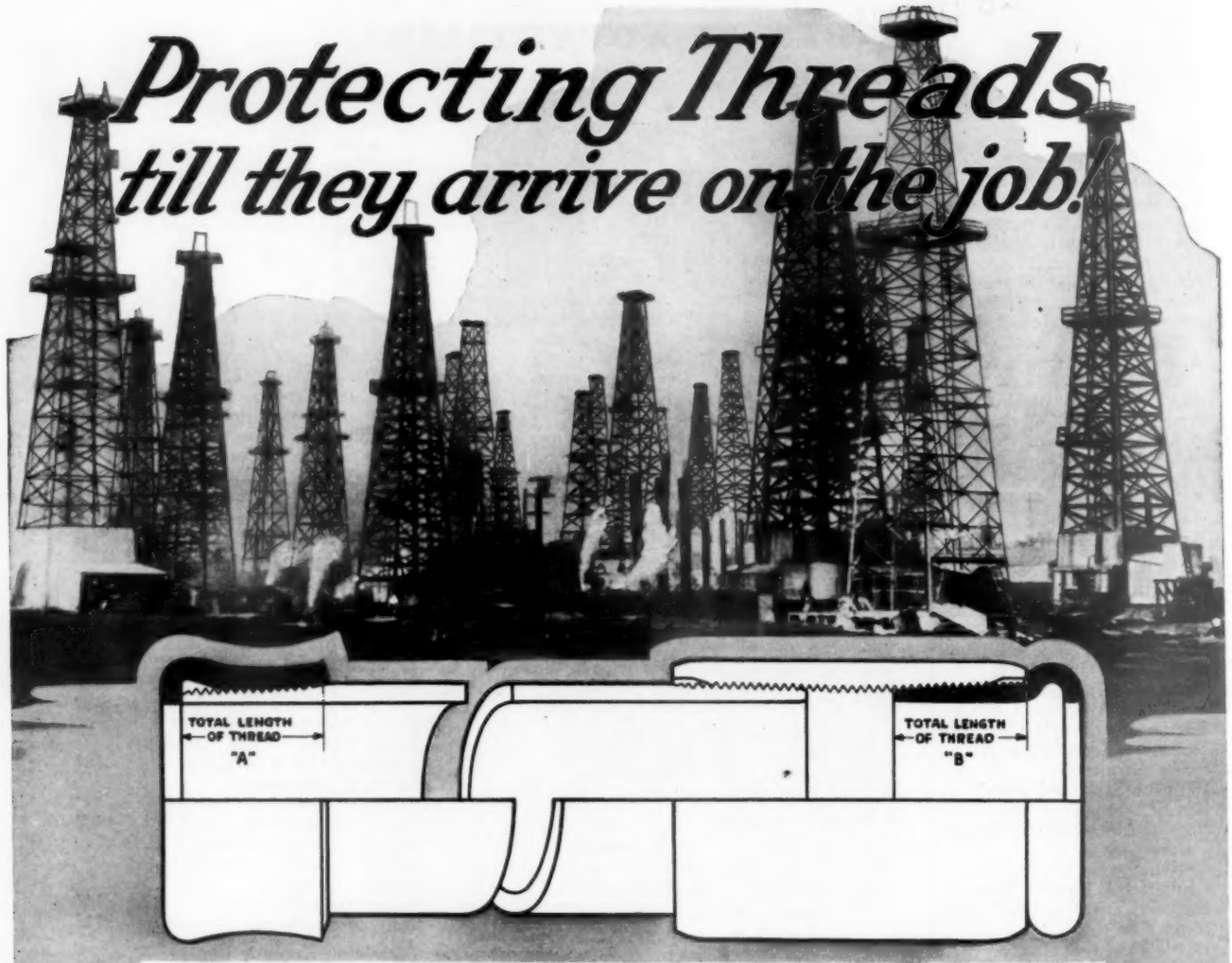

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SPENCER W. ROBINSON, *Editor*

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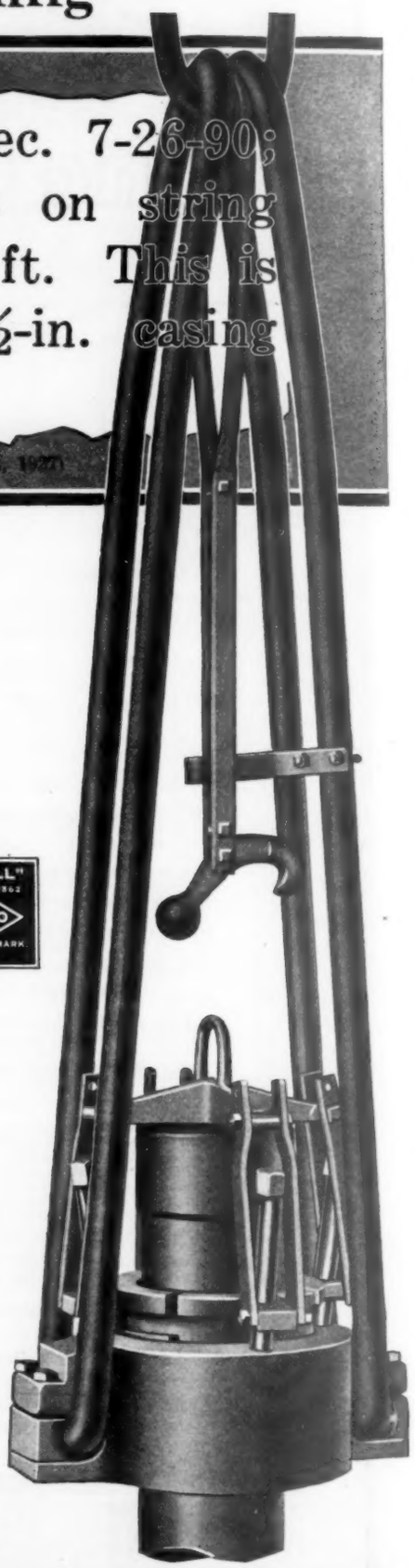
The Longest String of 15½-in. Casing Ever Set in Wyoming

Wertz Dome.—No. 8 sec. 7-26-90; waiting for cement to set on string of 15½-in. casing at 2291 ft. This is the longest string of 15½-in. casing ever set in Wyoming.

(REPRINTED FROM INLAND OIL INDEX, ISSUE OF OCTOBER 14, 1927)



Run With the Butler Slip Ring Elevator

(PATENTS PENDING)

The fact set forth in the clipping reproduced above, from the *Inland Oil Index, Oct. 14,* is of more convincing importance than any comment on our part could possibly be—that when the *supreme test came,* a *Butler Slip Ring Elevator* was selected to handle it.

Further, we have the word of Mr. Floyd Hatfield, superintendent at Wertz Dome, that this immense weight was handled with maximum speed and satisfaction, and without mishap.

Great strength, the development of tremendous gripping power, and the attainment of high speed performance are chief among the distinguishing characteristics of the all-steel *Butler Elevator.*

Instead of lifting the casing by the top coupling, the *Butler* has movable slips which work within a heavy steel bowl, thus engaging the casing and carrying the entire load. All slips are extra long, of correct taper, interlocking and self-aligning. They engage the outside wall of any make of casing without danger of slipping or crushing, and are easily released.

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WORLD'S OLDEST AND LARGEST MANUFACTURERS OF OIL FIELD EQUIPMENT

Crude Market Situation Unchanged

By KENT RIDLEY

A DIFFERENCE of only 1600 barrels in the daily production last week under the total of the previous period, indicates probabilities that with the interest taken in controlling production, the trend again will be downward. To this end definite movements are under way in Texas and Oklahoma, the former with official dictation from the Railroad Commission and the latter an organized voluntary movement to limit drilling of wildcat tests.

Cheap crude available in West Texas is attracting many refineries to that area. Five plants are to be constructed in Ward County, south of the Hendrick field in Winkler County, while other plants are projected and existing refineries enlarged in other nearby sections.

No change in the market situation occurred during the week, except that West Texas operators have notified royalty owners that a price of 10 cents per barrel will be charged for handling royalty oil to loading racks. This move has met with some opposition, and royalty owners have organized an association to protect their interests. Winkler County crude is moving to many distant refining points, but the low price of 60 cents which is attracting the demand, is for oil delivered on cars, generally far removed from the well.

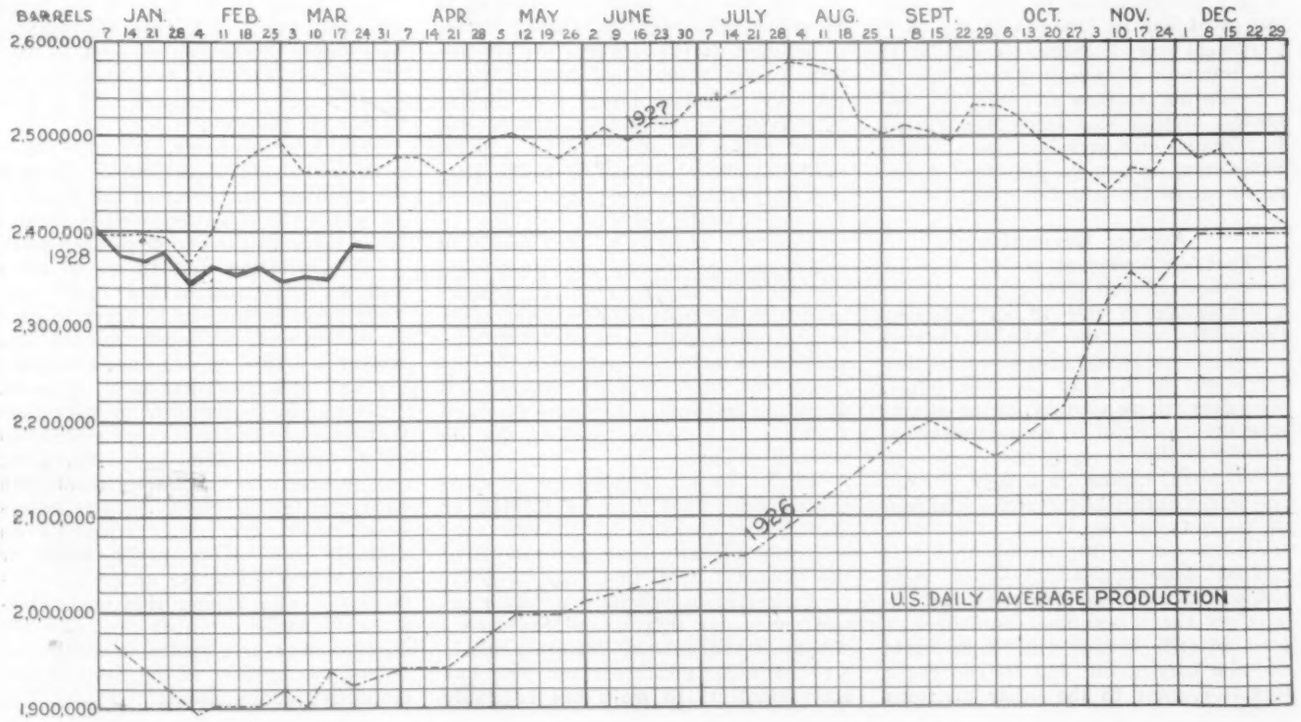
Natural decline last week cut 8000 barrels from the daily output of the Seminole area, a greater decline than for any single week for the past month. Last week there was a daily average of 27,000 barrels run into Seminole storage, representing an increase in storage in this district as against recent weeks. There were 265,000 barrels handled by pipe lines out of Seminole and approximately 8000 barrels moved in tank cars. The element of present relief from Seminole's over-production lies in the fact that smaller amounts of this crude is being stored at other points.

Refineries shut down at various places over this territory have resumed operations with the approach of the seasonal gasoline demand. These shutdowns have resulted in less stored gasoline in the territory, but rather shifted the runs into crude storage. Thus the situation reveals that quicker calls will be made for present refinery runs, and in turn a more of a lump demand for present stored crude will result.

Drawing on stocks in the Mid-Continent is under way in several of the old localities, especially in the Burbank field, and the bulk of the crude being drawn is being shipped to the East Coast, a large volume of which is going by tank car.

The Bolene Refining Company of Enid has started work on a four-inch line from Enid into western Logan County, where Oklahoma's deepest field is showing a gradual rise in output. It will touch the Roxana pool in Township 19-4 and run thence into the "18-4" area, where production is around 1000 barrels. Champlin Refining Company has a four-inch line in the latter area now, and is handling the bulk of the production. Roxana's production of about 5300 barrels is being run by Shell Pipe Line Company's four-inch to connect with a six-inch running from the Garber area to Cushing. Bolene Refining Company has been buying some Logan County crude, handling this by tank car out of the field. The completion of this new four-inch, which is expected in 30 days, giving this county's production three four-inch lines, will serve to insure ample line capacity for considerable time, due to the slow development because of the great depth of production.

UNITED STATES CRUDE PRODUCTION TREND



Curtailment Will Spread to Other Mid-Continent Fields

Committee of five authorized by Mid-Continent Oil and Gas Association to keep in touch with wildcat work

By WALLACE DAVIS
Staff Representative

TULSA.—A detailed program with an end toward complete stabilization of the industry was presented to the Oklahoma-Kansas division of the Mid-Continent Oil & Gas Association and a group of Mid-Continent operators here March 23. It would evolve present efforts on the part of various groups throughout the country to correct over-production, and go further to enlist the aid of the President, Attorney General of the United States, Secretary of the Interior, the governors of Texas, Oklahoma and California, the attorney generals of the respective States, and the chairmen of the conservation commissions. Its adoption would be more far-reaching than any single play yet outlined, and would have more of a permanent meaning. This program has been drawn up and was presented by J. S. Cullinan of Houston.

Mr. Cullinan attended the meeting of the association upon request, and heard the suggestions toward conservation of various Mid-Continent operators, to the association, which called the meeting as an outgrowth of one held March 15 by Seminole operators and the Proration Committee. The primary purpose of the meeting was to get authorization to name a committee of five to function in the Mid-Continent outside Seminole similar to the Seminole proration committee.

Following various opinions, the following motion was made by William N. Davis, vice-president of Phillips Petroleum Company, Bartlesville, and president of the general association:

Appoint Committee

"That the president of this division be authorized and directed to appoint a committee of five as an Advisory Committee, with the duty of keeping informed regarding wildcat and other operations in Kansas and Oklahoma, the effect of which may be to aggravate the condition of over-production, and the further duty, by persuasive and other lawful means, to induce the operators in both Kansas and Oklahoma to restrict drilling in all prospective areas therein, to the extent that this can be done consistently with lease obligations, and to formulate and report to the Executive Committee a plan by which the said curtailment may be carried on, and to address a formal request to the other divisions of this association to appoint similar committees charged with the same duties in their respective divisions.

The motion carried unanimously, and the appointment of such a committee was expected to be made early this week. Stress was made of the value of influencing producers in other sections of the country to take a like action.

Mr. Cullinan's plan, which won favor with the association and those operators present, is given in full as follows:

Cullinan Plan

"First. Presently excessive actual, with an apparent 50 per cent minimum, potential crude production in sight, particularly in the States of Cailfornia, Oklahoma and Texas, a condition that unless curbed seems likely to continue for months, if not years.

"Second. That the excessive actual and potential production in the three States is confined to a few pools and to less than one per cent of the nation's producing wells;

Reduce 20 Per cent

"Third. That it is urgently important that such excess actual production, now around 2,400,000 barrels per day, be reduced to the extent of at least 20 per cent, with imports held at 10 per cent or less of United States production, to the end that the producing end of the industry may be stabilized by reduction rather than further depressed by increased stocks, and crude prices be advanced to a point that will show reasonable profit after usual operating expenses and depletion and depreciation charges;

"Fourth. That as a vital factor in promoting conservation and preventing the untimely abandonment of producing wells, no restrictions should apply to the older pools, and every encouragement should be extended to the owners of small wells to enable full operation and insure adequate care and attention, and thereby prolong the life of such wells;

"Fifth. That as applied to the number of wells that may be located or drilled, the quantity of oil that may be produced daily from such wells, or the quantity of oil that may be delivered directly to privately owned storage under our federal and State constitutions and existing statutes, this is a problem for producers and pipe line representatives to work out equitably between the interests they represent, on such basis as will meet national and State conservation policies and legal requirements.

Predicated on the above, the following plan is respectfully submitted for your consideration, change, modification or approval as your judgment dictates, contemplating that when plan is agreed upon and approved by you, a copy will be submitted to the President, the Attorney General of the United States, the Federal Oil Conservation Board through its chairman, the Honorable Hubert Work, and in turn, to the governors, the attorneys general and the chairmen of the corporation commissions of the States of California, Oklahoma and Texas, for the purpose of securing a joint conference of the executives and such representatives of the three States, to consider, change, modify and approve the plan, in the hope and expectation that when so approved, similar orders will issue, making the plan effective by May 1, 1928.

The plan further contemplates being extended to other States as producing conditions in such States demand.

Definitions

"Sixth. Units and definitions follow:

(a) Pools to be classed as large, medium and small, the former meaning an average production per well of over 100 barrels per day, the latter an average production per well of less than 10 barrels per day;

(b) Area of pools, 2½-mile radius plus connected development beyond such radius, the center of the 40 acres on which the discovery well is located to be taken as the center of each pool;

(c) Operating unit to be 40 acres with an allowance of four well locations on each unit, or 10 acres to each producing well. When more than four wells are drilled on one unit, allowance per well to be proportionately reduced.

"It may be pertinent to mention here that beyond the issuance of restriction of movement orders, receiving, filing and posting the daily runs from each pool on which commission's orders have issued, receiving reports on monthly runs from other fields or pools within the State under their jurisdiction and seeing that its orders are reasonably complied with, no additional duty or expense would be involved on the part of the State or the respective commissions."

West Texas Crude Getting Wide Rail Distribution

Sixteen refineries getting portion of supplies from tank car shipments out of Winkler and Pecos Counties

By H. H. KING
Staff Representative

FORT WORTH, Texas.—The comparatively low prices prevailing on West Texas crudes has resulted in tank car shipments being made directly by producers and pipe line companies to refining points in five separate States, and during the short month of February total tank car movement of this crude reached a new peak level of 1,874,155 barrels. West Texas producers are dependent upon tank car shipments of crude and local field storage to maintain production at its present level of 344,310 barrels daily, or accommodate expected gains until early this summer when two more trunk lines will be completed into the district.

The heaviest shipments of West Texas crude in tank cars are being made by producers in the Hendrick field, where production is averaging about 180,000 barrels daily, with only two direct pipe line outlets completed and in operation, and during February the tank car movement of crude from this field was estimated at 1,345,850 barrels. The Texas & Pacific Railroad is handling the bulk of this movement, although The Orient Railroad has been handling a small amount of this particular crude along with Upton and Pecos crudes shipped out by Roxana Petroleum Corporation, which has a six-inch gathering system linking all three counties.

Sixteen refineries located in Texas, Louisiana, Missouri, Indiana and Illinois are receiving all, or a portion of their current crude requirements direct from West Texas via tank cars. Plants in Louisiana and Illinois are the largest consumers, while some crude is reaching the Beacon Oil Company's plant at Everett, Massachusetts, through tank car shipments to Texas City, thence via tankers. A comparatively small volume is disposed of in tank cars to plants in Texas, although a half dozen plants have been completed and started constructing lately in West Texas near the crude supply.

Refineries Receiving Oil

The following plants are receiving West Texas crude in tank cars:

Rio Grande Oil Company, El Paso, Texas.

San Angelo Refining Company, San Angelo, Texas;

Simms Oil Company, Dallas, Texas.

Star Refining & Producing Company, Fort Worth, Texas.

Crystal Oil Refining Corporation, Cedar Grove, Louisiana.

Chalmette Petroleum Corporation, Chalmette, Louisiana.

Louisiana Oil Refining Corporation, Bossier City, Louisiana.

Liberty Oil Company, Ltd., New Orleans, Louisiana.

New Orleans Refining Company, Inc., Norco, Louisiana.

Sinclair Refining Company, Meraux, Louisiana.

Roxana Petroleum Corporation, Wood River, Illinois, and Standard Oil Company (Indiana), Wood River, Illinois.

Roxana Petroleum Corporation, East Chicago, Indiana.

Standard Oil Company (Indiana), Whiting, Indiana.

Standard Oil Company (Indiana), Sugar Creek, Missouri.

Roxana Petroleum Corporation is leading all West Texas producers on tank car shipments, having averaged above one-half million barrels during February, but this movement will terminate upon the completion of the Shell Pipe Line Company's 10-inch trunk line from South Oklahoma to McCamey district. Roxana is building two 1,000,000 barrel concrete storage tanks to accumulate crude stocks for the protection of this line.

The longest hauls made on West Texas crude via rail is afforded by Roxana and Standard Oil Company (Indiana), as these two concerns are having deliveries made to their Indiana plants. Shipments made directly from the Hendrick field loading racks in Ward County to these two plants carry a tariff of 37 cents per 100 pounds, while crude loaded on the Orient Railroad at McCamey can be delivered to the Indiana plants at 36½ cents per 100 pounds.

Tank car movement of West Texas crudes to the Wichita Falls refining district is expected to follow shortly on a small scale, since plant owners in this section succeeded in getting a rate of 20 cents per 100 pounds authorized by the Railroad Commission from Pyote and Wickett, near Hendrick field.

(Continued on page 66)

WEST TEXAS TANK CAR SHIPMENTS

Tank car shipments of crude oil during February, 1928, from various West Texas fields to Gulf Coast export terminals and interior refining centers are listed below, showing name of shippers and source of crude by counties:

Shippers	Winkler	Crane-Upton	Pecos	Jones	Reagan	Fisher	Runnels	Loving	Total
Roxana Petroleum Corp....	263,500	*244,275	.....	.....	.....	.....	.....	.....	507,775
Southern Pipe Line Co.....	373,800	25,000	.....	.....	.....	.....	.....	.....	398,800
Independent Oil & Gas Co..	403,150	.....	.....	.....	.....	.....	.....	.....	403,150
American Petroleum Co....	305,400	.....	.....	.....	.....	.....	.....	.....	305,400
Gulf Production Co.....	.....	.....	135,830	.....	.....	.....	.....	.....	135,830
Kay County Gas Co.....	.....	37,850	.....	.....	.....	.....	.....	.....	37,850
The Texas Co.....	.....	31,400	.....	.....	.....	6,520	.....	.....	37,920
Phillips Petroleum Co.....	.....	.....	.....	32,200	.....	.....	.....	.....	32,200
Big Lake Oil Co.....	.....	.....	.....	.....	10,500	.....	.....	.....	10,500
Humble Oil & Ref. Co.....	.....	.....	.....	.....	.....	.....	2,080	.....	2,080
Lockhart et al.....	.....	.....	.....	.....	.....	.....	.....	2,650	2,650
Total	1,345,850	338,525	135,830	32,200	10,500	6,520	2,080	2,650	1,874,155

*Includes some Winkler and Pecos crudes.

Seminole Well Average Declines Six Barrels During Week

Natural decline continues steadily with more wells being plugged and abandoned than new ones added; important wildcat failures

TULSA—Greater Seminole production declined to a new low level Monday, yielding 286,909 barrels from 1080 wells, a well average of 267 barrels, or six barrels per well under the output for one week previous. This production shows a loss of 8490 barrels during the week, some of which resulted from failure of gas pressure in the Bowlegs pool failing to function properly over the week-end, but most of which was the outgrowth of a gradual natural decline.

Figures on production for March 25 and 26, as compared with those for March 19, are as follows:

Field—	March 19	March 25	March 26
Earlsboro	96,930	94,624	95,967
Little River	40,732	39,605	39,415
Bowlegs	83,263	80,788	78,630
Seminole City	56,300	55,687	55,586
Searight	18,165	17,621	17,311
Totals	295,399	288,425	286,909

The latest survey of activity in the Seminole fields shows 75 wells drilling and 15 rigs up, with 11 operations shut down. Thirty-five of the drilling wells were below standard depths, nine were drilling between 3100 and 3700 feet, eight were between 2000 and 3100 feet and 23 were above 2000 feet. The latter figure included the group of test wells spudded several weeks ago in the restricted district below Little River pool.

Earlsboro Completion

The latest new production in the Seminole area up to Monday night of this week was from Barnsdall's Ingram 8, in the northeast edge of Earlsboro field. This well, located in the northeast of the northwest of the southwest of Section 1-9-5, had the Earlsboro sand, from which more than 20 of the listed Earlsboro wells are producing, at 3615-38 feet, and swabbed 135 barrels. Barnsdall's Sango 4, in the southwest of the southeast of the northwest of Section 1-9-5, got a hole full of water in the Wilcox sand at 4392-4441 feet. It will be plugged back to the Earlsboro sand at 3572-78 feet and shot to be completed as a shallow well. Sinclair's Davis 3, in the northeast of the southeast of the northeast of Section 2-9-5, Earlsboro field, swabbed 475 barrels from Wilcox sand encountered at 4427 feet and drilled 13 feet.

One of the closest watched drilling wells in the entire area is Magnolia Petroleum Company's Hyde 1, in the northwest of the southeast of the northwest of Section 13-9-5, an offset to the Prairie's Charlie Davis 5. Late last week it was at 4120 feet in the Woodford shale.

Wildcat Failures

Added weakness was found in two important locations in wildcatting around Seminole last week which is of keen interest. The Texas Company's Reed 1, in the southwest corner of Section 12-8-5, between Bowlegs and the Barnsdall pool opener to the west, was abandoned early in the week after getting a hole full of water in Wilcox sand at 4720-25 feet. Carter Oil Company et al's Phillips 1 wildcat, in the northwest corner of the northeast of the northwest of Section 18-6-8, Sasakwa vicinity, found water in the Wilcox sand at 4178-81 feet late in the week, and was plugging back to a showing in the Woodford at 3940 feet. This well created considerable interest two weeks ago when reported running high and showing for a small well in a pay believed to be Woodford.

Tidal Oil Company has location made for two wildcat tests southeast of Little River, Shecoy 1, in the southwest of the southeast of the southeast of Section 7-7-7, and Clarke 1, in the southwest of the southeast of the northeast of the same section.

Carter Oil Company's Micco 1, in the southeast of the northeast of Section 9-8-6, Bowlegs field, was fishing for tools last week after getting 1000 feet of oil in the hole from 4154-79 feet. W. B. Pine's Hoyecha 1, in the southeast of the southwest of the southeast of Section 26-8-6, Bowlegs, topped the Viola lime at 4010 feet, unusually high, and was drilling ahead near 4050 feet late in the week.

Independent Oil & Gas Company's Davis 3, in the southeast of the southwest of the southeast of Section 2-7-6, made a 300 barrel well on the swab from 10 feet of Wilcox sand topped at 4248 feet.

An average of 115 producers in Greater Seminole were off during the last week. Only 53 of the producers of 1079 listed were flowing naturally. There were 489 being flowed by air or gas lift, 345 pumping, and 77 being swabbed for production. Among those off production, there were a large number being rigged up to pump while air-gas lift equipment was being installed on several. Production was being revived in a few wells by swabbing, and a large percentage were cleaning out. There has been an average of around four producers abandoned and plugged in the five fields each week for the past five weeks. Plugging of weak producers during this period have amounted to nine more than completed producers in Greater Seminole.

Five new wells were added to the Hunton lime producers in the Allen field during the past week, the total initial yield of which amounted to 1350 barrels, bringing the daily yield there to approximately 11,000 barrels.

Details on Critical Fields

Pool	Oil wells completed	Total initial production	Initial per well	Number producing wells	Daily production barrels	Daily production per well	Rigs up	Wells Drilling
WEST TEXAS								
Hendrick	98	344,020	3,510	108	179,415	1,661*	18	106
Church & Fields	181	201,110	1,111	180	55,890	311	2	1
Gulf-McElroy	59	51,725	877	58	16,790	289	..	1
Yates	179	1,168,245	6,527	179	46,820	262*	7	14
Totals	517	1,765,100	3,414	525	298,915	569	27	122
TEXAS PANHANDLE—								
Hutchinson County	1,095	544,670	498	976	40,045	41	7	15
Gray County	202	88,310	437	192	19,325	101	12	63
Carson County	177	58,695	332	146	6,880	47	2	6
Wheeler County	42	14,230	339	34	1,005	30	..	10
Totals	1,516	705,905	466	1,348	67,255	50	21	94
OKLAHOMA—								
Seminole	1,282	1,568,094	1,223	1,080	286,909	267	15	75

*Production partially pinched.

Regional Organization Favored By Geologists

Meeting at San Francisco and field trips out of Los Angeles draws attendance of 400; R. S. McFarland new president

By BRAD MILLS
Staff Representative

SAN FRANCISCO-LOS ANGELES.—More than 400 members and visitors from all parts of the United States, Canada and Mexico, attended the 13th Annual Convention of the American Association of Petroleum Geologists, held jointly in these two cities March 21-25. All technical and business sessions were held in San Francisco, Wednesday, Thursday and Friday, while the field trips and golf tournament were conducted out of Los Angeles on Saturday and Sunday. The headquarters of the Association in San Francisco were in the Clift Hotel, while the technical sessions were held in the Native Sons Auditorium.

New officers nominated at Wednesday's session were:

R. S. McFarland, Twin States Oil Company, Tulsa, president.

J. E. Elliott, Elliott Core Drill Company, Los Angeles, first vice-president.

David Donoghue, Texas Pacific Coal and Oil Company, Fort Worth, Texas, second vice-president.

John L. Rich, Consulting Geologist, Ottawa, Kansas, third vice-president.

G. C. Gester, as past president, becomes a member of the executive committee, which is composed of the four executive officers. Previously a secretary-treasurer and editor were elected, but these offices have been changed to those of second and third vice-presidents, respectively.

At a meeting of the business committee, the matter of life membership was discussed. It was recommended that Article 3 Section 1 be amended to provide for life membership at $300. It was also recommended that Article 4 Section 6 be amended to make the fiscal year the same as the calendar year. Article 8 Section 1 was amended so that certain technical societies may be recognized. The paleontologists have applied for an affiliation with the association. The business committee stated that by organizing regional sections, such as the California members now have, additional good may be accomplished. The matter of the election of officers was discussed and any suggestions as to changes will be received and considered. The business committee is composed of one man from each geographical district and officers of the association. It acts as a sort of steering committee.

The National Research Council's Committee on Geological Studies met Wednesday morning. This committee usually ascertains the most vital subjects confronting the industry and is instrumental in recommending men to carry out the research work.

Official Reports

G. C. Gester, president, David Donoghue, secretary-treasurer, and John L. Rich, editor, made their annual reports Thursday afternoon. Mr. Gester stated that more oil is now in sight and in better control than at any time in history. He emphasized the fact that waste is not rampant in the industry, citing that the oil companies themselves are vitally interested in saving rather than wasting their assets. Mr. Gester briefly traced the history of the organization from 1918, stating that its membership has increased from 87 to 1950 since that time. Of the total membership, 1286 are active and 664 are associate members. He spoke of a need of a library at headquarters and said that the organization already has about 1000 volumes.

The report of David Donoghue, secretary-treasurer, was read and disclosed that the gross revenue of the association during the year was $41,372.00 and that a nice surplus exists.

Mr. Rich, editor, told of his work during the year and explained minor changes in the association's bulletin. The papers read at the annual meeting are generally published at a later date in the bulletin. It was explained that all papers intended for publication in the trade journals should be referred to the association's headquarters first.

It is the usual rule for the association not to decide on a meeting place until sometime after the annual convention. New Orleans made a strong bid for the 1929 convention and it is generally believed that the Crescent City will land the next meeting.

During the Thursday's session, Harry R. Johnson consulting geologist of Los Angeles, read a special paper in which he urged that competent geologists be employed to pass upon all dam sites before the structures are built. He did not attempt to shift the blame upon anyone, but said that the region where the St. Francis Dam washed out, killing more than three hundred people, was faulted. Mr. Johnson said that the San Francisquito fault had been known for years. He further stated that the fault was classified as a dead one but showed the need of geological as well as engineering advice. He urged that the members recommend the appointment of competent geologists in the various States where dams are built.

Mark L. Requa delivered the address of welcome. He traced the development of mineral resources of California from 1849 to the present date, showing how the technical men had formed an important cog in the industrial machinery during the period. He also cited statistics showing how both the per capita production and consumption of mineral products, including petroleum, had increased during the past generation. Just how the Easterners rushed to California in the early days "to make their pile" and returned to their native haunts, only later to abandon the idea of returning at all, also was an interesting feature of his address.

Wednesday, March 21

The first paper read before the association was "The California Oil Industry in 1927," by Austin Cadle of San Francisco. Mr. Cadle discussed the general situation in California during the past year, particularly the economical relationship between supply and demand. The paper also discussed the geological features of new developments in the State, including Seal Beach, Potrero, Goleta, Rincon, Round Mountain, Mt. Poso, Buttonwillow, Union Avenue, Edison and Fruitvale. A brief survey of California stocks during 1927, showing why stocks were reduced 7,500,000 barrels, was made.

K. C. Heald, who is associated with the Gulf Companies with Pittsburgh headquarters, read a paper on "Recent Development in Petroleum Research." Mr. Heald went into details on the research work in which the American Association of Petroleum Geologists, the National Research Council and the American Petroleum Institute are now engaged. He stressed the importance of scientific research.

"The Geology of the La Panza Quadrangle, San Luis Obispo County, California," by Ralph Arnold and Wayne Loel, Los Angeles, was well received at the Wednesday session. The paper was read by Mr. Loel and dealt with the way in which the La

Panza Quadrangle is affected by the great fault systems of California. It was also shown that the Quadrangle contains the shore line of the San Joaquin Valley. The paper dealt with some length with the faunal stratigraphic and structural relationships with the San Joaquin Valley.

John L. Rich, consulting geologist of Ottawa, Kansas, read a paper on "Notes on the Origin and Migration of Oil." Mr. Rich explained that by analyzing conditions in the various fields and comparing them with the many current theories of migration and accumulation, it may be possible to throw out a number of the theories in practically any case. By taking the remainder and repeating the process, it is possible to arrive at a better understanding of these problems. Changes in viscosity and surface tension of both oil and water, with increase of temperature, the possibility of migration occurring mainly in certain porous "carrier beds" in a geological section, and the fact that physiographic changes may have occurred in the region since the oil and gas were accumulated, were high points in Mr. Rich's paper. He urged the abandonment of the common practice of merely ascribing the source of the oil in a field to the nearest carbonaceous shale without proof that such a formation was its true origin.

"Compaction as a Cause of Migration of Petroleum," by R. C. Beckstrom and F. M. Van Tuyl of the Colorado School of Mines, was a very interesting paper read Wednesday afternoon. The authors describe experiments in which a specially designed high pressure apparatus recovered oil from a shale-water-oil mixture within a very few hours. The result of the experiments indicated that compaction is the most important reason for the migration of oil from the various shales into porous reservoirs.

A new type of apparatus with which the pressure required to produce flowage in rock salt and various sediments has been measured, was described by F. M. Van Tuyl of the Colorado School of Mines in his paper on "The Measurement of Flowage Pressures of Sedimentary Rocks and its bearing on the Salt Dome Problem." By studying the result of experiments with the new apparatus, it is possible that the question of the origin of Salt Dome will be viewed from a slightly different angle.

Thursday, March 22

The first paper read Thursday was "Jamin Action—What It Is and How it Affects Production of Oil and Gas," by Stanley Herold of Stanford University. Mr. Herold explained that Jamin action is a physical phenomena caused by the alternation of globules of liquid and bubbles of gas in channels of various capilary dimensions. Just how Jamin action affects the production of an oil well by offering a resistance to anyhydrostatic pressure, pushing the fluid towards the open well, was explained. It was also shown that in some instances this action may actually dictate the conditions of production of the well. The use of pumps, gas-lifts and the like tend to break down this action by coaxing the oil from the sand through an increased differential, it was shown.

Oliver R. Grawe of Reno, Nevada, in a paper on "The Stratigraphy and Structure of the Cromwell Oil Field, Oklahoma," discussed the field as one of several important pools in the Mid-Continent having a low dip, small surface indications and poorly defined structure. A generalized well log of the field was made possible through a careful study of shale samples, well logs and literature from the Cromwell project, which was an early study of the drilling of the field. It was disclosed that, although the structure changes with depth, there is no increase of dip with depth, as is often the case of other Mid-Continent fields. Two important periods of folding were interpreted.

"The Relationship Between Over- and Under-Thrusting as Revealed by Experiments," by Theodore A. Link of Calgary, Alberta, expressed the belief that the ordinary experiments used in subjecting building stones to pressure will lead to a better understanding of structural conditions in orogenics, which are sufficiently exposed to be studied as a complete unit. The paper also discussed the adaptability of these principles to rotational pressure and the valuable information relative to the relationship between over-and-under thrusting.

Just how tricky sub-surface conditions in the Rocky Mountains are adding greatly to the cost of wildcatting was shown by John G. Bartram and J. E. Hupp of Denver, in their paper on "The Sub-Surface Structure of Some Unsymmetrical Anticlines in the Rocky Mountains." It was shown that during the past few years numerous wells have either found the objective horizon far below the expected depth or failed to reach it entirely. It was pointed out that on many anticline, the sub-surface axis does not directly underlie the surface axis, and when the fold is narrow it may be both expensive and difficult to locate.

A short paper on "Notes on the Sed-

(Continued on page 65)

High Lights of the A. A. P. G. Convention

Thursday and Friday were rainy days in San Francisco, but nobody seemed to mind the weather. It gave the members a chance to go back home and tell that it can rain "on the West Coast"—and how!

The Women's Entertainment Committee in both San Francisco and Los Angeles kept the visiting women on the hop. Teas and sight-seeing trips were very well arranged and carried out on schedule.

The dinner-dance Thursday evening at the Fairmont was attended by nearly all the visiting members and by "such wives as were present." Although in the heart of the city, the Fairmont is on top of a young mountain. The taxis grind up the grade in low gear.

Chinatown, the Golden Gate, the Presidio and the historic old bay lent a romantic touch to the occasion. Chinatown is like the Old West—it is hard to find as it is often pictured.

The delegation from the Colorado School of Mines made the jump from San Francisco to Los Angeles by boat.

The many lantern slides were doubly useful. They illustrated the papers and gave some of the tired members a chance to sneak out of the Auditorium under cover of darkness.

J. J. Galloway of Columbia University, retiring president of the Paleontologists, after warbling a particularly vicious series of old Latin names of foramnifera, explained, much to the surprise of the members, "Whatever that is, that is it." Many members who didn't know the Latin names then felt much better.

The Southern Pacific ran a special train from San Francisco to Los Angeles Friday night. Stag cars were furnished for those who liked the masculine atmosphere.

Speaking of dinner-dances, the one given Saturday night at Mack Sennett's motion picture studio wasn't so bad. Nearly all members and wives were there amongst an honest-to-goodness movie atmosphere.

Some of the Los Angeles boosters thought the main part of the meeting should have been held there. "Oh, well," they said, "they had to come here to see the fields, anyway."

Before leaving Los Angeles, many members made a tour of a motion picture studio. High board fences prevented a good structural view, however. Aerial photography is necessary in mapping motion picture studio domes.

A careful search of all vest pockets failed to disclose a single "doodle bug."

The average Mid-Continent geologist openly confesses that the 2000-foot producing sand found in certain California fields is "some sand."

Third Big Producer in Hendrick North Extension

By H. H. KING
Staff Representative

SAN ANGELO.—Completion of the third producer on the north extension of the Hendrick field with a heavy flow of pipe line oil early this week lends support to the theory that this part of the structure will be the most prolific. The new well offsets the two big producers on this end of the field, and was drilled by Southern Crude Oil Purchasing Company on the Hendrick "B" Lease, tract 67.

Although somewhat low on structure as compared to offsets, the new well encountered the big pay at 2828 to 2830 feet, and is credited with having gauged 620 barrels during 20-minute test after flushing the rotary mud, and gauged 10,900 barrels pinched during the first 24 hours.

The Republic Production Company brought in its third big well early this week when its Grisham-Hunter 2-"A," section 45, flowed 340 barrels clean oil per hour, carrying 500 pounds back pressure, through a 5/8-inch choke, from regular pay at 2752 feet.

Roxana Petroleum Corporation's Ida Hendrick 6-"C," located in the lower end of the field, came in with an estimated flow of 400 barrels of oil per hour after drilling two feet in big pay at a total depth of 2898 feet, and flowed 6575 barrels pinched during the first 24 hours.

Increases Gas Flow

Among the trio of tests drilling on the east side of the field, Amerada Petroleum Corporation's Walton 1 increased its flow to about 50,000,000 cubic feet of dry gas when deepened to 2465 feet, while Southern and Westbrook's offset to this wildcat test is changing to cable tools to try and recover drill stem twisted off at 2706 feet, with a junked hole threatened.

Independent Oil & Gas Company's Cowden-McCabe 1 is drilling ahead below 2700 feet, and carrying casing while making a light spray of oil with gas.

Southern Crude and Dixie Oil Company's T. G. Hendrick 1-B-T-67 is located in the southwest corner of section 33 and a west offset to Cranfill & Reynolds' big well that effected the north extension to the field. The former was drilled in with rotary, and logged the top of the brown lime horizon at 2505 feet, with a surface elevation of 2846 feet, while the extension discovery well hit the lime at 2480 feet, with a surface elevation of 2842 feet, thus revealing a dip of 21 feet on the top of the lime to the west. The west well penetrated the big lime horizon 325 feet before developing big production, while Cranfill & Reynolds' big producer has been carried only 253 feet into the big lime horizon. Such irregularities are quite frequent on the west side of the structure, as illustrated by the performance of Gulf's southeast offset to the discovery well of the field, and it is not believed that big production will extend any appreciable distance to the west of the latest producer. However, Humble Oil & Refining Company owns a full section, and Southern Crude and R. A. Westbrook have lease on all but the southwest quarter of the section adjoining Humble to the south, thus eliminating inside drilling until market conditions justify.

Flows 11,025 Barrels

Cranfill & Reynolds' Hendrick 1-C, which is credited with being the largest producer in the field, was allowed to flow an average of 11,025 barrels daily during the past week, but has since been increased following the completion of a new six-inch line to the well by Magnolia. The pinching of this big well reflects on the crude yield of the south offset held by Atlantic and Collett-O'Keefe, and last week the latter jumped to 10,350 barrels on a 24-hour gauge with back pressure applied and the drill stem purposely left in the hole. Atlantic and Collett-O'Keefe's Hendrick 2-F, a south offset to the Southern-Dixie heavy producer, has cemented casing in the big lime, and will attempt to drill in shortly.

Cranfill & Reynolds have made location on another one of their 20-acre tracts in the north end of the field, thus affording a new output of activity to the northwest of production. They hold lease on the south one-half of the northwest quarter of the northwest quarter of Section 33, and Hendrick 1-D will be drilled on the west end of the two-location lease. If this location is drilled five or more offsets will follow, including three by Humble Oil & Refining Company, Murchison Oil Company and Cranfill Brothers Oil Company's Hendrick 1-H, is located in the northeast part of the same section, and will also require a circle of offsets, since the drilling site consists of only five acres.

New activity among the larger companies in the Hendrick field has been slowed down somewhat within the past 10 days in anticipation of a rigid shutdown plan being ordered put into effect by the Railroad Commission. The mailing of official summons Saturday by the Railroad Commission to each lease owner in the field calling for appearance of one executive officer of each company and partnership at a meeting in Fort Worth March 29 is taken as evidence of a determined step being taken towards checking new developments and production. Each company representative also was instructed by the commission's order to present copies of all existing crude contracts involving Hendrick field crude deliveries.

Production in the Hendrick field averaged 179,415 barrels daily during the past week from 108 flowing and pumping wells, or 1,661 barrels daily per well. This represents a drop from the previous week, but a lull in completions occurred during the past 10 days, while further spread of water required more big wells to be throttled down. The volume of shut-in production throughout the field has materially decreased lately, owing to water troubles, and only a few operators are holding back production for lack of tankage, or a market. The percentage of cut oil in big wells soon grows beyond available facilities for treating, and choking of production is the only course left.

Grayburg Well

Within a week after the Grayburg Oil Company of San Antonio purchased the Osage Oil Corporation's (Wrightsman) interest in three small tracts on the Halff land, Crockett County, with one big producer in the regular Yates field lime pay, the former drilled in a second producer with an estimated flow of 400 barrels of clean oil per hour. This property is located on the southeast side of the Yates field, and across the Pecos River. The new completion began showing oil at 1131 feet, and the hole filled with oil at 1114 feet. The big flow was obtained early this week when carried two feet in the soft lime pay to a total depth of 1116 feet. The first producer on this lease was completed last Christmas Eve with an undetermined initial flow at 1015 to 1051 feet, and early last week gauged 630 barrels clean oil on one and one-half hour gauge. Grayburg has arranged to have Illinois Pipe Line Company deliver its production on a common carrier basis via Del Rio to Lytle, located near the Somerset field, and Grayburg's line will then deliver the crude to its San Antonio refinery. Terms of the consideration paid by Grayburg for this property were not made public.

Texas Panhandle Wildcat Makes Heavy Flow

AMARILLO—Semi-wildcat territory in eastern Gray County contributed an unusually heavy producer late last week when Ray and Massie's A. Chapman 1 blew in making 200 barrels of 40 gravity oil per hour from granite wash at 2790-2800 feet, with a surface elevation of 2840 feet.

This well gauged 4320 barrels of clean run oil during the first 24 hours, with about 2,000,000 cubic feet of gas, and at last reports had settled to 100 barrels per hour. Paraffin accumulation is believed to be particularly responsible for the decline, and larger flow lines are being installed. The well is located on the north line of the southwest quarter of Section 51, Block 25.

Ray & Massie are veteran operators in the North Texas district, with headquarters at Wichita Falls, and drilled the well on the A. Chapman lease on the strength of the showing made by The Texas Company's A. Chapman 1-A, which was completed late last November with an initial flow of 590 barrels of 42 gravity oil during the first 24 hours after drilling pay at 2818-23 feet. The latter well was the first completion of any appreciable size in the pool, and led to the starting of a half dozen tests on nearby acreage. The Texas Company's Chapman 2-B was in process of completion early this week having swabbed 140 barrels during the first 15 hours at 2722-54 feet, and 50 barrels of oil during the following 24 hours.

In the Lefors field, located five miles to the northwest of the Chapman pool, The Texas Company's S. W. McLarty 1-A, section 2, "B & B" survey, flowed 305 barrels of 35 degree gravity oil at 2389-2400 feet, with a total depth of 2410 feet. The Texas Company's C. Thut 1, located northeast of Lefors and in Section 1, H&GN survey, is trying for deeper pay after passing up a good show of oil in granite wash horizon at 2806-15 feet, with a surface elevation of 2908 feet. This test was drilling dry granite wash formation at 3355 feet, according to late reports. The Texas Company is the principal lease owner in this area, and is conducting a large drilling campaign since having made arrangements to get its crude moved from The Texas Panhandle district on a common carrier basis by one of the trunk lines. It is also building up gas production to support a natural gasoline plant being erected in the Lefors field by the Columbian Gasoline Corporation, with a carbon black plant in connection.

Considerable new production along with some disappointments has been registered lately by operators in the Bowers-Jackson field, Gray County. During the past week the 28 flowing and pumping wells in this particular area averaged 11,030 barrels daily. The Texas Company's J. B. Bowers 1, which was completed last January making 4,450 barrels of 44 gravity oil daily from regular pay at 2845-95 feet, continues to lead on daily output, with an average of 3,280 barrels daily during the past week. Danciger Oil & Refining Company et al's W. Jackson 10, located on the north line of the northwest quarter of Section 88, was brought in last week making 2150 barrels of high gravity oil with heavy gas flow during the first 12 hours from granite wash pay at 3020-27 feet. This well was drilled in with rotary, and suffered a rapid production decline because of paraffin accumulation, but will be agitated to maintain the natural flow.

Winkler County Royalty Owners Organize

Midland, Texas—Royalty owners in Winkler County section of West Texas assembled here last week and formed an organization to be known as the Winkler County Royalty Owners' Association as a preliminary step towards entering protest against the producing companies in the Hendrick field charging the former 10 cents per barrel for gathering, transporting and marketing the former's crude in tank cars at a distant railroad point.

Landreth Production Corporation and Roxana Petroleum Corporation were the first producing companies in the field to serve notice on the Royalty owners that royalty oil would be purchased only at 10 cents below the posted price of 60 cents. However, these two concerns invited the royalty owners to build storage or make other disposition of their oil if so desired.

The new royalty organization will endeavor to obtain an equitable assessment of taxes; accurate information on field developments; and also will aid its membership in securing adjustments on division orders complicated in this particular area, because of producers having a variety of crude contracts, and storing a portion of the oil as produced. A fee of $10 per year will be charged for membership. The officers of the association follow: President, T. G. Hendricks, Odessa; first vice president, E. G. Bedford, Midland; second vice president, T. F. Grisham, Abilene; third vice president, M. S. Goldman, San Angelo; treasurer, L. H. Dail, Midland; temporary secretary, Patrick Hill, Midland; advisory board: Harley R. Hinton, Big Springs, and P. A. Bellard and Patrick Hill, both of Midland. The membership committee is composed of M. S. Goldman, T. F. Grisham, Fred E. Guthrie of Big Springs, H. B. Rouse of Dallas, R. P. Rankin of Midland and E. C. Cannon of Odessa.

Curtailment Committee Will Look Over Contracts

AUSTIN, Texas—The committee appointed by the Texas Railroad Commission to devise ways and means of bringing about curtailment of oil production in Winkler County was no nearer a solution of the problem presented to it when adjournment was taken Saturday afternoon following several hours of closed session. At request of the committee, the Commission issued an official order directing that an official representative of all operating companies having interests in the Winkler County pool appear at a meeting to be held Thursday, March 29, at the Texas Hotel, in Fort Worth.

While nothing of the deliberations of the committee was given out, it was said by R. D. Parker, chief supervisor of the Oil and Gas Division of the Railroad Commission of Texas and chairman of the curtailment committee, that contracts under which certain producers are to deliver specified quantities of crude currently, were the stumbling block. Members of the commission were in session with the committee for a short time Saturday afternoon, at which time it was decided that the matter of these contracts would be gone into thoroughly at the Fort Worth meeting. Chairman Clarence E. Gilmore of the commission said that a majority of that body will be in Fort Worth during the week and will meet with the committee should its advice be required.

The previous call for a meeting of Winkler County operators to consider plans for handling the over-production situation and which resulted in appointment of the committee of six, was an invitation; while the more recent order is more formal and mandatory. It directs that "all producers of crude oil in Winkler County, be and are hereby required to make appearance at said meeting through and by one of their executive officers familiar with field conditions in Winkler County, and contracts which have been entered into by the producer which he is representing, said representative to have with him for the purpose of presenting the same to the Commission for the use of said committee, a complete copy of each and every contract entered into by such producer, covering the sale, delivery, transportation, storage, and other disposition of crude oil being produced and disposed of under such contract."

The Internationalization of Oil

By R. L. DUDLEY

THE effect of the international oil situation upon the American petroleum problem can hardly be over-estimated. Of course we have had an international situation for many years in Mexico, which has played an important part on the domestic oil problem, but there are now factors to be considered that have increased in importance until they must be considered right along with American over-production.

If America would hold a place in the petroleum world, American companies must take part in foreign operations. There are few, if any, who would have America sit back and see foreign companies assume control of all the producing properties outside of the United States. American industry and American home life are too dependent upon petroleum to allow this to happen.

If then, the premise that American oil companies are to take part in foreign operations is a sound one—and there is no doubt that it is—American companies face abroad the same general situation that they do at home under conditions of competitive drilling.

And once they have gotten the oil they are faced with two alternatives—one to bring it back to the United States where they have refining facilities, or sit by and allow foreign competitors to drain their leases. Of course there is the further alternative of storing it abroad, but the political situation in some countries where oil is being produced makes such a procedure on a big scale undesirable, not to mention the additional cost of handling it.

"Which is the wiser — to conserve at home, or to conserve abroad?" we were asked by one oil man. The answer is obvious, especially in view of the paragraph foregoing.

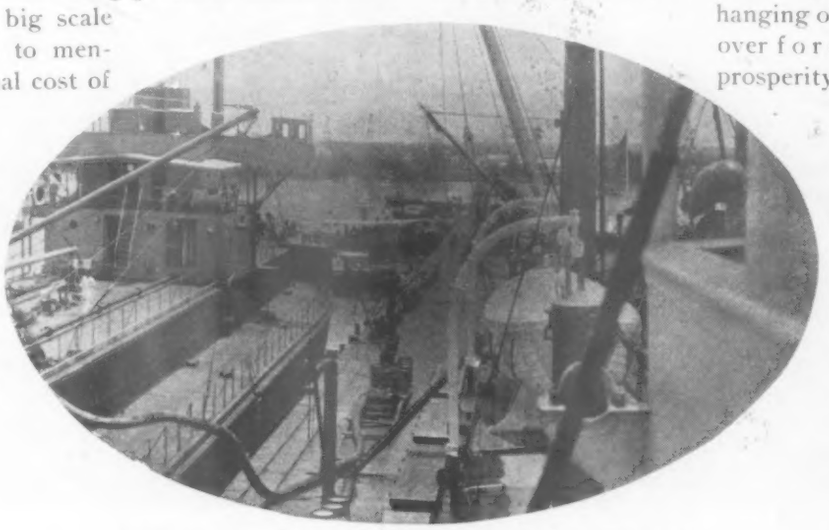
But the facts in the domestic and international situation cannot be denied—that no matter how sound the policy may be, its workings will result in demoralized markets and small profits, or no profits, most likely to all—American companies and foreign companies as well.

Will the answer be a round table discussion of the international petroleum situation, with an internationally harmonious program resulting? Such a plan has been suggested.

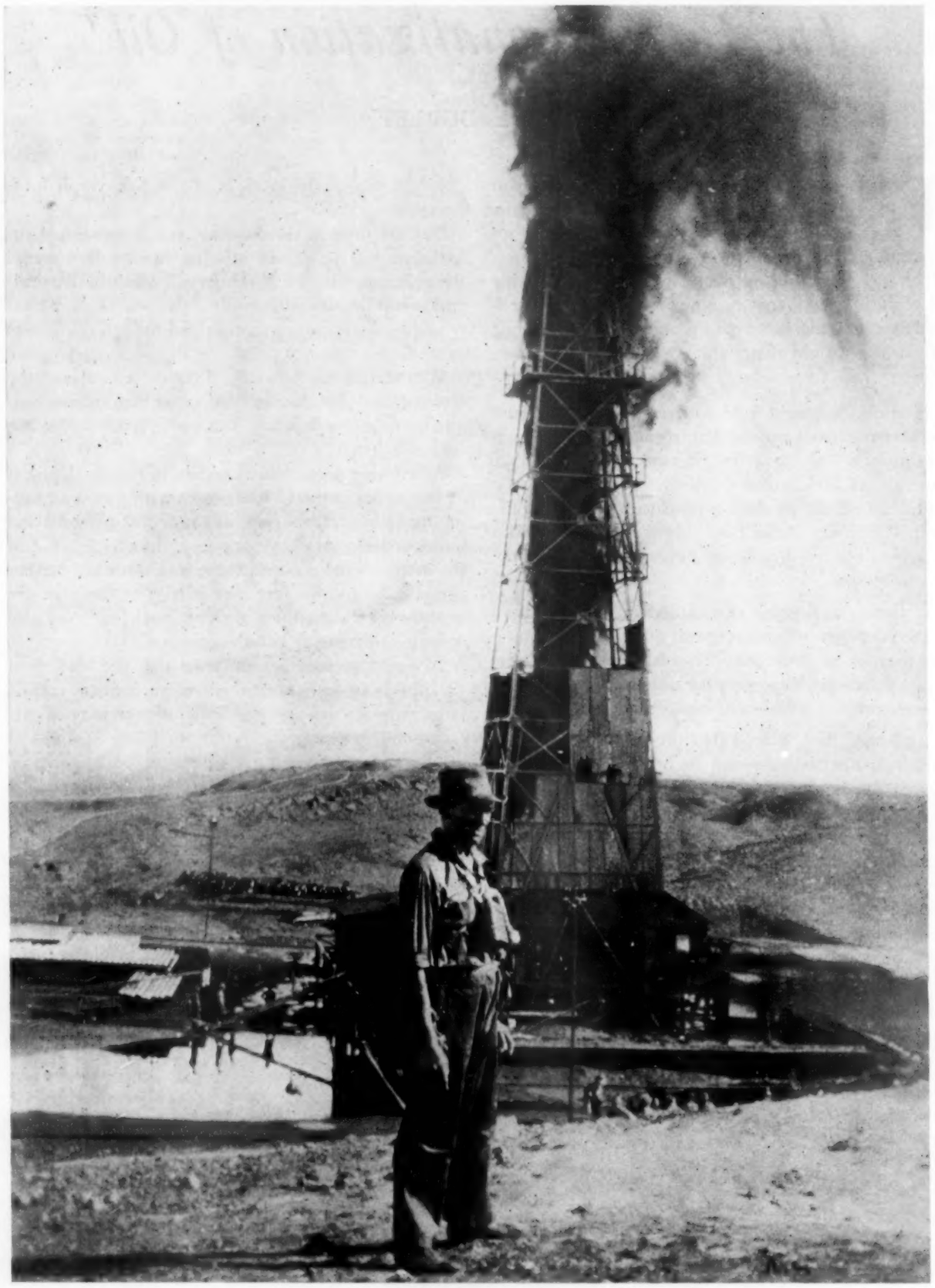
In working toward co-operation in the development of properties in the United States with a view of saving the industryfrom ruin, we know that personal and business jealousies have proven a drawback. But in the international problem these jealousies are further complicated by the fact that parties to the plan are of different nationalities, with national jealousies also injecting themselves into the question.

It would appear that the least that the leaders of the American and foreign petroleum industry can do is to consider the problem from an international aspect—and, realizing the futility of doing business at a loss, try to arrive at a sympathetic understanding.

We are trying to do our bit here in America by curtailing production. It is an economic necessity that it be done. Some success is attending our efforts. But the American domestic situation is affecting the international situation—the threat of over-production hanging over us is a threat over foreign petroleum prosperity. And, in turn, our efforts to curtail can result in conservation of our crude oil, but in great financial difficulty, if the foreign situation is not handled as well.



Loading tankers with Venezuela crude at Lago Terminal



Baba Gurgur No. 1, of the Turkish Petroleum Company, a 92,000 barrel well in the Kurdish hills of Mesopotamia. Two Americans and three coolies were killed in bringing the well under control. It is 1520 feet deep and five other wells are on the sand in its vicinity.

Mesopotamia Oil May Be Factor in Three Years

Two large producers have been completed at widely separated points. Divided ownership of concession will offer opportunity for International co-operation in preventing future world over-production.

By R. L. DUDLEY

WHILE explorations in Mesopotamia have met with a distinct degree of success thus far in the development program of the Turkish Petroleum Company, it is not likely that oil from either of the newly opened fields in Mesopotamia will reach its way to European markets under two years. However, it is very probable that within the third year the Turkish Petroleum Company's holdings may be a real factor in the Continental market and that they will exercise a material influence on the American oil situation.

Two large wells have been completed on the Turkish Petroleum Company's properties, at points 100 miles apart. The most recent well, estimated at around 12,000 barrels a day, was finished only a very short time ago, while five wells are now on the sand in the vicinity of the first well finished, which had an estimated production of 92,000 barrels per day. Both wells are comparatively shallow, and the crude from the big well is reported to contain about 25 per cent of gasoline and, although containing sulphur, to be a most excellent refining crude.

BECAUSE of the probable effect of these wells upon the American oil problem, as well as the international situation, it is well to go into the ownership—fairly generally known—of the Turkish Petroleum Company, and what the company has done.

The Turkish Petroleum Company which holds an immense concession in Mesopotamia, frequently referred to as the Irak concession, is owned jointly by French interests, which hold 23.75 per cent of the stock; the Royal Dutch Shell, which owns 23.75 per cent; the Anglo Persian Oil Company, which owns 23.75 per cent; American interests, which own 23.75 per cent, and C. S. Gulbenkian, an Armenian, who holds 5 per cent interest. The American companies making up the American interests are: Atlantic Refining Company, Gulf Oil Corporation, Pan-American Petroleum Company, the Standard Oil Company of New Jersey and the Standard Oil Company of New York.

Following a geological survey of the country in 1925, which indicated some apparently excellent structures, a development program of eight combination rotary and cable wells and of two cable wells, was decided upon.

THUS far, of the combination wells, one 92,000 barrel well has been completed, Baba Gurgur 1; one well has been abandoned, and five are on the sand in the vicinity of Baba Gurgur 1.

In the Qaiyara district, on the Tigris, a 12,000 barrel well has been completed.

These two producing wells are approximately 100 miles apart. Both are shut in.

Baba Gurgur 1 is located in the Kurdish hills, (see accompanying photograph for topography) in the eastern part of Mesopotamia (Irak, if you know your modern geography better than your Bible.) It has a depth of 1520 feet, and caused a lot of trouble when it blew in, two Americans and three coolies being killed before it was put under control.

The new well, Qaiyara No. 1, as it will be called for convenience, is 100 miles west of Bagdad, in the direction of the Mediterranean Sea. It is also 40 miles south of Mosul. The well is 800 feet deep. The oil produced from it probably will find its greatest use as fuel oil. A second well is drilling nearby.

Baba Gurgur 1 is 650 miles from the nearest accessible deep water point on the Mediterranean, to which waters the logical route for a pipe line will lead. Most of this distance is nothing but desert. After leaving the Kurdish hills, in fact, there are few heights to be passed in laying the line.

A line run from Baba Gurgus to, for instance, Byrout, on the Mediterranean Sea, passes by the Qaiyara properties, with little deviation.

But while the country is fairly level, the proposed line crossing literal desert country, there are other problems which will be encountered in building the inevitable pipe line, which are not ordinarily encountered. It will pass over a country of nomadic people, and although men who know them say that they have been misrepresented in the daily press as bloodthirsty bandits, the pipe line under consideration does present a problem on their account. It is even possible that the line may be paralleled by a railroad.

No definite information has been given out as to the immediate plans for a pipe line from Baba Gurgur to the sea, although it is said that such a line will likely require two years in the building. But it is likely that certain of the interests holding part of the Turkish Petroleum stock will want to start such a line at as early a date as possible.

THE recent law passed by the French legislative bodies, which puts an extremely high tariff on imports of gasoline and lubricating oil, was based, American oil men think, upon the belief of the French that they will be able to refine their own oil from Turkey before a great length of time has passed. It, therefore, would appear only logical that the French group should desire to start the line as soon as possible.

But whether, in view of the international petroleum situation, the other interests will want to rush a line into Mesopotamia, remains to be seen.

While it is pure assumption, it might be within the realm of reason to assume that France might even want to undertake the line herself.

The international aspect of the Turkish Petroleum Company, and the fact that control is vested in no two groups, will make its operations of unusual interest. The opportunity for international business co-operation is offered to a remarkable degree—an opportunity that oil men generally hope will be exercised in such a manner as to not contribute to further world over-production.

Fields of Peru Have Important Production

Surplus over home requirements is moved to Canada for refining

By A. R. McTEE
Staff Representative

SINCE Venezuela and Colombia have forced themselves upon the attention of the oil industry through their actual and potential production, other fields in South America have naturally become obscured. In fact one hears so little about the other fields, the knowledge that they exist at all is not widespread. There are, however, important districts beyond those that we know so well. No unusual development has taken place in any of these older fields during the past three or four years, but they supply many South American cities with oil and its derived products. Three important fields are in Peru and are located at Zorritos, Lobitos and Negritos.

As described in the "1928 International Edition of the West Coast Leader," Zorritos is situated on a bay formed by Punta Santa Rosa on the north and Punta Sechurita on the south. The settlement is 18 miles down the coast from Tumbes, in Peru.

Zorritos proper has an approximate area of 731 acres and has been productive for 40 years. It has been operated by "El Establecimiento Industrial de Petroleo de Zorritos." Sr. Fautino G. Piaggio was sole owner of the propery until his death in 1924, when the holdings passed to his family.

The older wells and most of the newer ones are all drilled along the beach, some below the high-water margin. There are now about 400 wells and the field produces about 80,000 barrels per year. The total output to date approximates 2,500,000 barrels. The wells are from below 200 to 2000 feet deep, with the best producers ranging between 1000 and 1700 feet. The average per well now is about seven barrels. A few of the wells flow, but most of them are pumped. Occasionally a 100-barrel well has been obtained that would continue its flow for a year or more. In 1917 a well was completed for 250 barrels from 1719 feet, probably the biggest well the field has ever had.

Drilling is done by rotary, the "standard" and the "combined standard" and Canadian cable tool system.

Most of the drillers are natives, and it is said that one native overseer can recite the "logs" of perhaps a hundred wells.

Zorritos wells yield considerable gas.

A refinery is operated at Zorritos and handles about 100 tons of crude daily. Several grades of gasoline and kerosene are made, with a quantity of lubricating oil.

Most of the refined stock is consumed in Peru.

Zorritos crude is a mixed paraffin-asphalt base, specific gravity ranging between 42 and 17 degrees with an average of 38. The gasoline content from straight run distillation is between 20 and 30 per cent.

Lobitos is on the coast at about latitude 4 degrees and 26 minutes South, on the bay formed by Punta Lobitos on the south and Punta La Cruz on the north. The district is about 10 miles north of the port of Talara. The Restin-Pena Negra area is about 15 miles north from Lobitos and the Cabo Blanco field is four miles north of the Restin-Pena Negra district. The Lobitos Oilfields, Ltd., a London firm, operates the area.

A majority of the wells in the Lobitos field are less than 2000 feet in depth and are producing less than half the output of the district. They are the old wells, all being pumped. The greater part of the output is from a small number of wells from 2000 to 4000 feet deep.

There are now about 500 wells in the entire group of fields, the most of them in Lobitos proper. Daily average production per well ranges around 19 barrels, in Lobitos and 40 barrels in the other two fields.

Drilling methods include the "standard" and combined "standard" and the Galician, with cable tools and eccentric bits. The last named method was introduced from Poland and a number of Polish drillers were brought over to use the bits.

Approximately one-third of the wells in the Lobitos area yield a low cold-test oil which gives a lubricating oil with a low solidifying point. The oil is of mixed paraffin-asphalt base, averages about 35 to 38 degrees Baume, and has a gasoline content of about 30 per cent.

Lobitos has tankage for more than 30,000 tons of oil. The product is disposed of to the International Petroleum Company, Ltd., of Canada and shipped from Talara to North American refineries.

Restin Cabo-Blanco has an area of more than 2700 acres and the wells are much larger than in the Lobitos field, some of them having an initial flow of as much as 3700 barrels.

The "standard" system of drilling is used and this area is the only one in Peru where motors are used.

The oil produced is lighter than in the Lobitos field, averaging about 38 degrees Baume.

Production of the entire group of fields has been about 16,000,000 barrels.

Negritos is located on the bay just north of Parinas Point, the most westerly point of South America. The fields covers are area of at least 50 square miles. It is divided into 11 districts, of which six are practically adjoining. The Negritos field was the first to be drilled and now consists of small wells making up about 4 per cent of the output of the area.

The majority of the wells in the old Negritos field are about 1200 feet deep.

At the southern limits of the Negritos district lies Section 38, a section where some of the biggest wells in Peru have been drilled. Many of the early wells averaged 2000 barrels consistently. The area which has about 100 wells produces 5 per cent of the total production of the field.

East of Section 38 is Lagunitos, which may be called the field headquarters. It is located four miles south of Negritos and the district is responsible for about 7 per cent of the field output. Production depths vary from 200 to 2500 feet.

The Verdun and Lomitos areas are usually considered together since they are separated by a very narrow unproductive strip. Verdun wells average between 1500 and 2000 feet and yield about 6 per cent of the field total.

Lomitos is east of Verdun, covers five square miles and produces about 40 per cent of the yield of the district. Producing sands in this section are highly productive and are very thick.

The Verdun Extension is an area about two miles by three miles along the northern boundary of Verdun and Lomitos. This section gives 32 per cent of the field output.

Outlying districts include La Brea, Ancha, Talara, Tablazo and Parinas. These are all small and yield probably 2 per cent of the entire output.

All the fields in this group are connected by a narrow gauge railroad, the main lines of which aggregate more than 50 miles. There are 12 steam locomotives, the largest of which are 20 tons capacity, and about 200 flat cars. Lighter traffic is handled by tractors and trucks.

The company operating the property has built about 70 miles of improved road, the most of which was constructed with Holt Caterpillar tractors. These tractors with trailers are used extensively in the Section 38 district, which lies in a salt marsh, and these tractors are also used in building roads to new locations in the extension areas of the field. The roads and railroad department of the company keeps about 500 men busy with five steam and gasoline powered shovels working continuously. Tractors are used to drag the roads and keep them in shape also.

The entire group of fields now has about 1500 wells. The company owning the property, the International Petroleum Company of Toronto, Canada, is applying most modern methods of production in all its developments. A large compressor plant compresses the dry gas for returning to the sands in gas lift work.

Oil produced from this district is high grade, of a mixed base, paraffin and asphalt, and ranges between 30 and 40 degrees Baume.

There are several gasoline plants in the field.

Total production of Peru in 1927 was 9,800,000 barrels, and the gross output of all three districts up to this time had been 80,473,000 barrels.

Will Venezuela Be Our Next Market Buster?

A new oil flood that must soon be reckoned with

By H. J. STRUTH
Petroleum Economist

IF some of you think that the problems of the petroleum industry will be solved when we have definitely passed the peaks of our own flush production areas, get out your maps of South America and try to imagine—if you can—the huge quantity of oil that lies beneath that vast, rugged area named Venezuela.

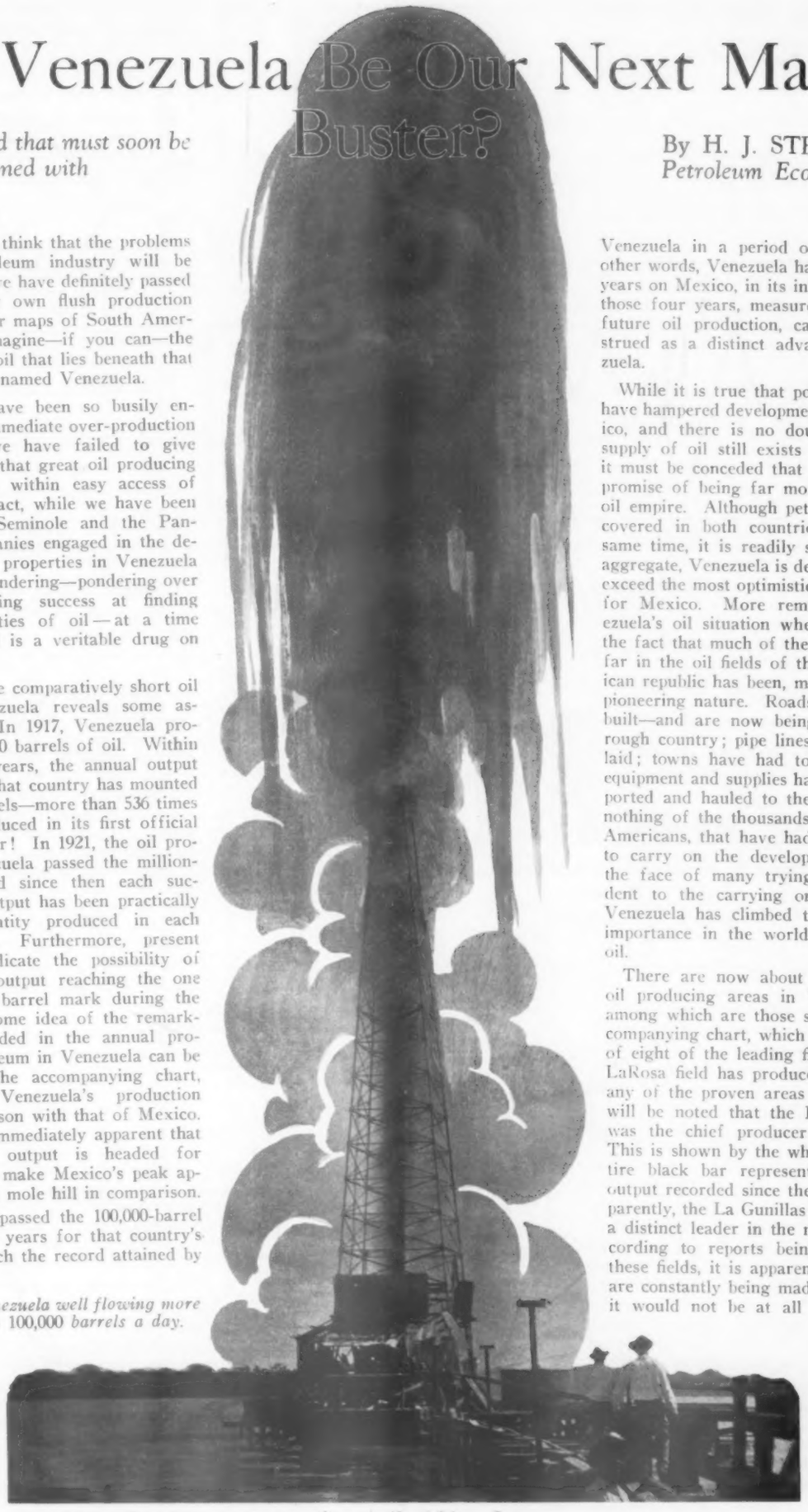
Many of us have been so busily engaged with our immediate over-production problems, that we have failed to give much thought to that great oil producing country that lies within easy access of our shores. In fact, while we have been pondering over Seminole and the Panhandle, the companies engaged in the development of oil properties in Venezuela have also been pondering—pondering over their overwhelming success at finding enormous quantities of oil—at a time when foreign oil is a veritable drug on the market!

A review of the comparatively short oil history of Venezuela reveals some astounding facts. In 1917, Venezuela produced only 120,000 barrels of oil. Within a period of 10 years, the annual output of petroleum in that country has mounted to 64,000,000 barrels—more than 536 times the quantity produced in its first official oil producing year! In 1921, the oil production of Venezuela passed the million-barrel mark, and since then each succeeding year's output has been practically double the quantity produced in each preceeding year. Furthermore, present developments indicate the possibility of Venezuela's oil output reaching the one hundred million barrel mark during the current year. Some idea of the remarkable gains recorded in the annual production of petroleum in Venezuela can be obtained from the accompanying chart, which shows Venezuela's production curve in comparison with that of Mexico. From this it is immediately apparent that Venezuela's oil output is headed for heights that will make Mexico's peak appear to be only a mole hill in comparison.

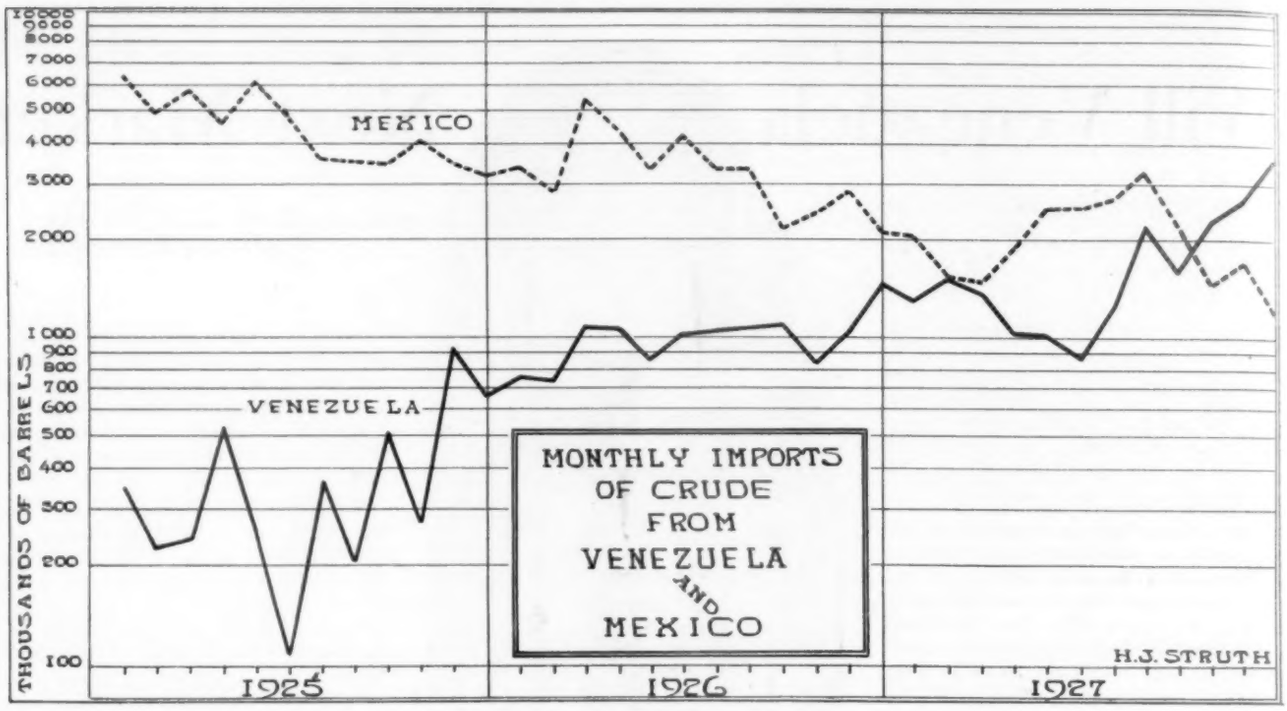
After Mexico passed the 100,000-barrel mark, it took 15 years for that country's oil output to reach the record attained by Venezuela in a period of 11 years. In other words, Venezuela has a lead of four years on Mexico, in its initial stages—and those four years, measured in barrels of future oil production, can only be construed as a distinct advantage to Venezuela.

While it is true that political influences have hampered development work in Mexico, and there is no doubt that a huge supply of oil still exists in that country, it must be conceded that Venezuela gives promise of being far more prolific as an oil empire. Although petroleum was discovered in both countries at about the same time, it is readily seen that, in the aggregate, Venezuela is destined to greatly exceed the most optimistic estimates made for Mexico. More remarkable is Venezuela's oil situation when one considers the fact that much of the work done thus far in the oil fields of that South American republic has been, more or less, of a pioneering nature. Roads have had to be built—and are now being built—through rough country; pipe lines have had to be laid; towns have had to be established; equipment and supplies have had to be imported and hauled to the interior, to say nothing of the thousands of men, mostly Americans, that have had to be recruited to carry on the development work. In the face of many trying obstacles, incident to the carrying on of this work, Venezuela has climbed to third place in importance in the world's production of oil.

There are now about a dozen proven oil producing areas in Venezuela, chief among which are those shown on the accompanying chart, which shows the status of eight of the leading fields. While the LaRosa field has produced more oil than any of the proven areas of Venezuela, it will be noted that the La Gunillas field was the chief producer of oil in 1927. This is shown by the white area—the entire black bar represents the aggregate output recorded since the beginning. Apparently, the La Gunillas field will become a distinct leader in the near future. According to reports being received from these fields, it is apparent that extensions are constantly being made, indicating that it would not be at all difficult to ma-



A Venezuela well flowing more than 100,000 barrels a day.



terially increase the country's total output, should conditions justify it. With the possible exception of the Guanoco field, which is not shown on the accompanying chart, most of the oil produced in Venezuela is comparatively light in gravity, ranging from 18 to 36. Table 2 shows the production of the eight leading fields for 1927, and the aggregate output to December 31, 1927.

Table 1 shows the annual oil production figures for Venezuela and Mexico.

TABLE 1

Annual Oil Production—Venezuela and Mexico

(Thousands of barrels)

Year	Venezuela	Mexico
1904	....	126
1905	....	251
1906	....	502
1907	....	1,005
1908	....	3,933
1909	....	2,714
1910	....	3,634
1911	....	12,553
1912	....	16,558
1913	....	25,696
1914	....	26,235
1915	....	32,911
1916	....	40,546
1917	120	55,293
1918	333	63,828
1919	425	87,073
1920	457	157,069
1921	1,433	193,398
1922	2,201	182,278
1923	4,201	149,585
1924	9,042	139,678
1925	19,687	115,515
1926	37,226	90,421
1927	64,400	64,200

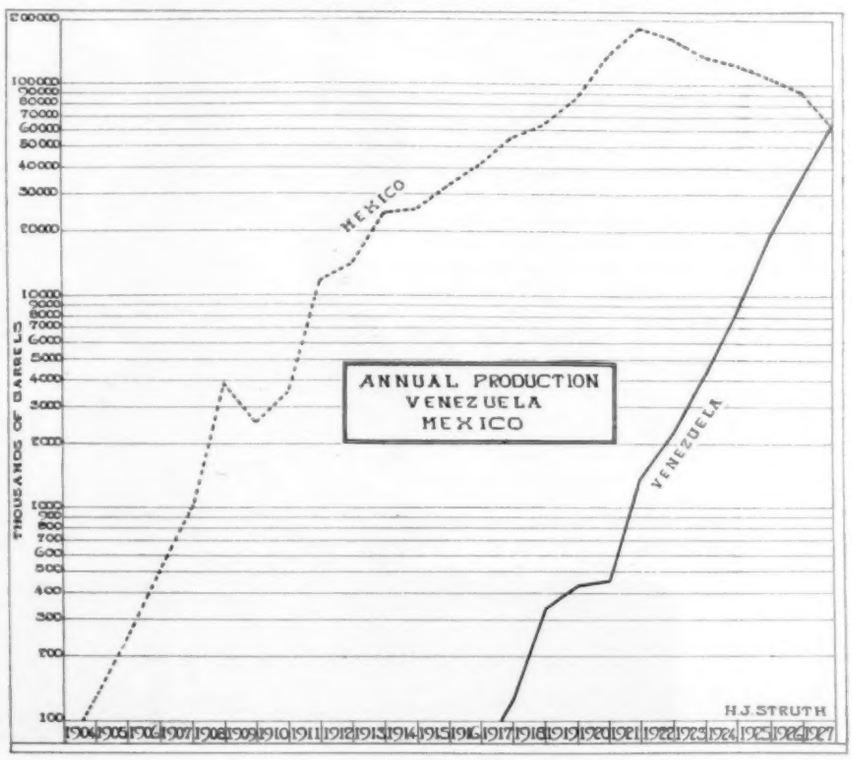
TABLE 2

Production of Eight Leading Venezuela Oil Fields

(Thousands of barrels)

Field	1927 Production	Aggreg. Output 12-31-27
La Rosca	19,283	53,450
Mene Grande	9,875	38,179
La Gunillas	28,790	29,998
El Mene	2,535	8,472
Ambrosia	272	2,002
Concepcion	524	1,638
La Paz	277	1,306
Punta Benitez	1,146	1,280

Although storage data is not available at this time, it is understood that a considerable quantity of Venezuelan oil has been accumulating in these fields and at water terminals. The bulk of the oil being transported out of the country has been consigned to United States ports. Although we have not been aware of any marked influx of crude from Venezuela, it is a fact that we are now receiving ten times as much Venezuela oil as we received in January, 1925. The accompanying chart shows the marked upward trend of crude imports from Venezuela, in comparison with the rapidly declining

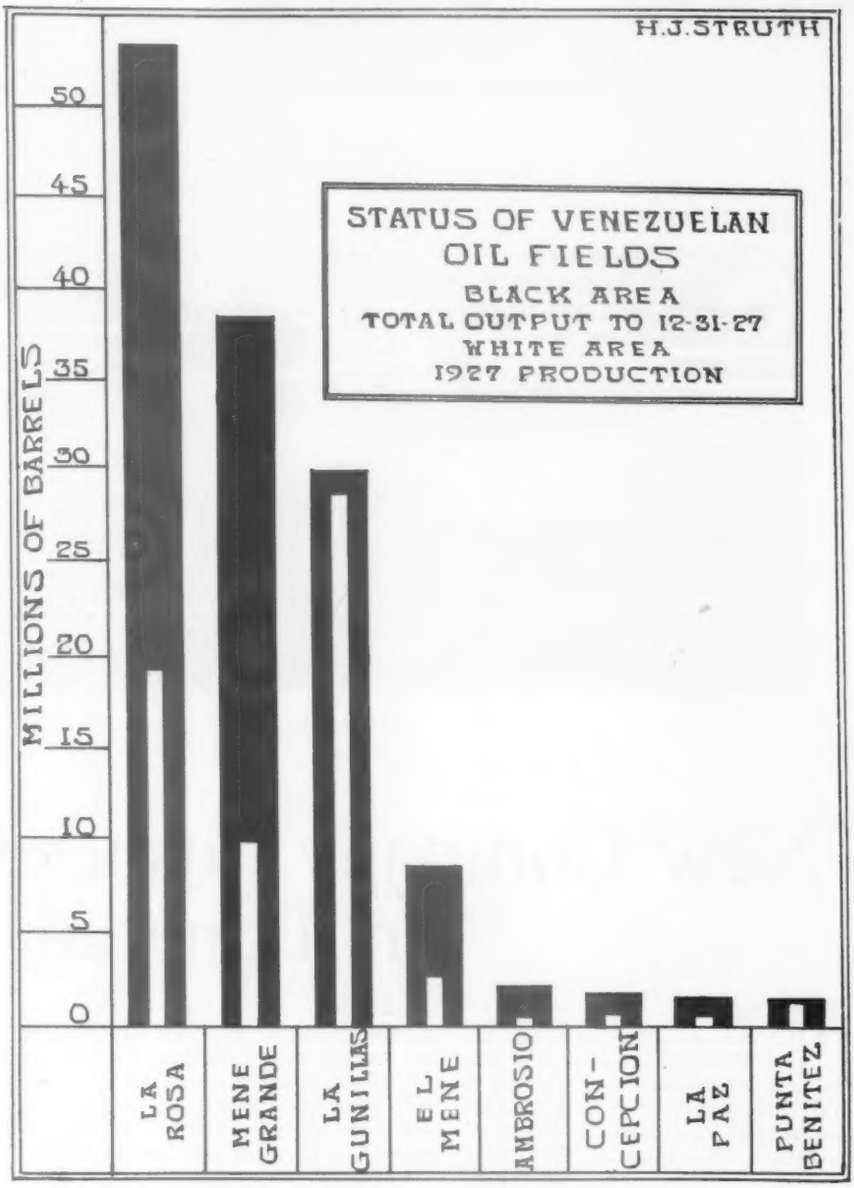


receipts of Mexican crude. Thus, where Venezuela was shipping about six million barrels per month less than Mexico in 1925, it is now exceeding Mexico's exports to the United States by more than two million barrels a month. In January, 1925, Venezuela's exports of crude petroleum to the United States were 353,000 barrels, while Mexico was contributing 6,461,000 barrels. In December, 1927, our imports from Mexico had declined to 1,327,000 barrels, while those from Venezuela reached a total of 3,510,000 barrels.

What is the significance of this new oil empire? What effect will it have upon the future status of the United States oil situation? These are important questions that deserve more than casual thought. Some oil men pass lightly upon these questions and point out the fact that the Venezuelan oil situation is in "strong hands" and will probably not prove to be a disturbing factor in our own situation. Granting the fact that a large part of Venezuela's oil production is controlled by the major companies, it must also be conceded that these same companies operate large refineries in the United States—especially along the Atlantic Coast and on the Gulf Coast. Maricaibo is only 1,885 miles by water from New York, and a tanker can make the round trip in considerably less time than is required to transport crude from California or Galveston, Texas. Even now, several Eastern Seaboard refineries are including a considerable proportion of Venezuelan crudes in their daily still runs. Suppose, for example, that our own national production curve begins to show a marked downward trend, and posted prices begin to ascend. Wouldn't it be logical to expect the big companies, who own huge present and potential supplies of Venezuela oil, to increase deliveries of this product to their refineries? What effect would that have upon the United States petroleum situation?

When the time arrives to materially increase the output and shipments of Venezuela oil, you can bet your bottom dollar that it will be done, regardless of whose hands control the situation. All we need is a few price boosters in our own fields—and then—watch the rising tide of Venezuelan crude! Facts are stubborn things, but they cannot be lightly ignored. In a recent issue of THE OIL WEEKLY, the writer persented certain facts concerning the United States oil situation that were conducive of encouragement for the current year. By reason of the anticipated increased demand for motor fuel during the current year, it was pointed out that we could expect a demand for 940,000,000 barrels of crude. While, to a great extent, the situation depends upon the producer of American petroleum, it is a foregone conclusion that he must also keep a watchful eye upon Venezuela.

In other words, the American oil producer should not allow himself to be carried away on a wave of optimism, but should carefully study his situation in comparison with the oil markets throughout the rest of the world.



While it is comforting to know that American oil holdings in Venezuela insure us against any future deficiency in our own oil supply, at the same time, it is also a probability that it may exert a rather powerful adverse influence upon our immediate domestic petroleum situation. After all, every additional barrel of crude imported into the United States can only be interpreted to imply the displacement, barrel for barrel, of oil produced in our own fields. If we import 70,000,000 barrels of foreign crude during this year—70,000,000 barrels of our own production will pile up in storage. Our major American oil companies deserve much credit for their foresight and for their ability to clinch and develop foreign oil properties, but any marked tendency to become over-zealous in increasing the flow of foreign oil into this country can only result in intensifying the chaotic conditions that still continue to confront our industry.

Will Venezuela be our next oil market buster? That question appears just as logical as was a similar interrogation in connection with the early developments of Seminole. If Venezuela does not exert a serious adverse influence upon the American petroleum situation of the immediate future, it will be because the major American operators in that country will have made strong efforts to control their output and shipments to our ports. Remember, it was not a great while ago that Mexico's rising tide of crude exports to the United States caused a severe break in the posted price of crude in our own markets. Venezuela looms considerably larger on the oil horizon than Mexico, and could easily prove to be a demoralizing factor—perhaps the next in our popular series of hectic disturbances.

It remains to be seen whether or not a continued increase in the output of Venezuelan oil and a consequent continued increase in its importation will have any material influence upon our own oil situation.

Asphalt Lake Near Brighton, Trinidad.

New Company Pushes Operations in Trinidad

THE current year has witnessed the development of a new major oil company on the Island of Trinidad, British West Indies, which is located off the northeast coast of Venezuela. The Trinidad Oil Fields Operating Company, Ltd., was organized under British law in August, 1926, and drilling was begun in November, following. Deliveries of oil to local refineries were begun in January and continued until the completion of pipe line, storage and cargo-loading facilities in August, of this year. On August 27 the first cargo of 77,000 barrels of oil was loaded in the Ss. "Beaconoil" for shipment to the Beacon Oil Company, of Everett, (near Boston), Massachusetts, to which port shipments are now being made regularly.

The early successes of the new company have been followed by an expansion of its activities, and it is now operating eight drilling rigs in three different fields, all of which are connected by trunk pipe lines. The Operating Company's activities, as well as practically all of the Colony's oil operations, are located in the southern portion of the island. Its headquarters, shops, tank farm, cargo pump station, and loading pier are located at Sobo, near the famous Pitch Lake at Brighton. From that point a six-inch pipe line has been extended nine miles in a southeasterly direction to serve the Fyzabad and San Francique districts, in which substantial production has been developed. At Grant's Trace, about midway between the terminals of this six-inch line, it is joined by a four-inch line which extends southward a distance of eight miles to serve the Palo Seco District, where the new company has three drilling rigs and six producing wells yielding around 1500 barrels of oil per day.

The new company owns one well, in the San Francique District, which has produced nearly a quarter of a million barrels of oil since its completion on February 6, last. Another well located in the Palo Seco District, heretofore noted as an area of small pumping wells, came in with an initial production of 2500 barrels per day and has flowed more than one hundred thousand barrels of oil since its completion on June 23, 1927. A lease in this district is credited with a recovery of more than 10,000 barrels per acre since production was developed during February, 1927. Palo Seco crude averages around 34 degrees, A. P. I.; and San Francique oil ranges from 25 degrees to 37 degrees, differing with respect to the various horizons from which production is obtained. Fyzabad oil averages around 20 degrees gravity.

The company owns leases on approximately 12,000 acres of freehold lands and has applied for prospecting licenses and oil mining leases on approximately 18,000 acres of Crown lands and lands whereunder the mineral rights are vested in the Trinidad government. These lands are situated adjacent to and in the vicinity of proven areas in the Pitch Lake, Lot One, Vessigny, Fyzabad, San Francique, Palo Seco and Cedros-Icacos districts.

Of the older established oil companies of Trinidad, only seven are now active:

Trinidad Leaseholds, Ltd., H. Johnston, manager, Pointe-a-Pierre.

United British Refineries, Ltd., and United British Oilfields of Trinidad, Ltd., F. J. Fleming, manager, Point Fortin.

Apex (Trinidad) Oilfields, Ltd., Col. H. C. B. Hickling, manager, Fyzabad.

Trinidad Lake Petroleum Company, Ltd., and Petroleum Development

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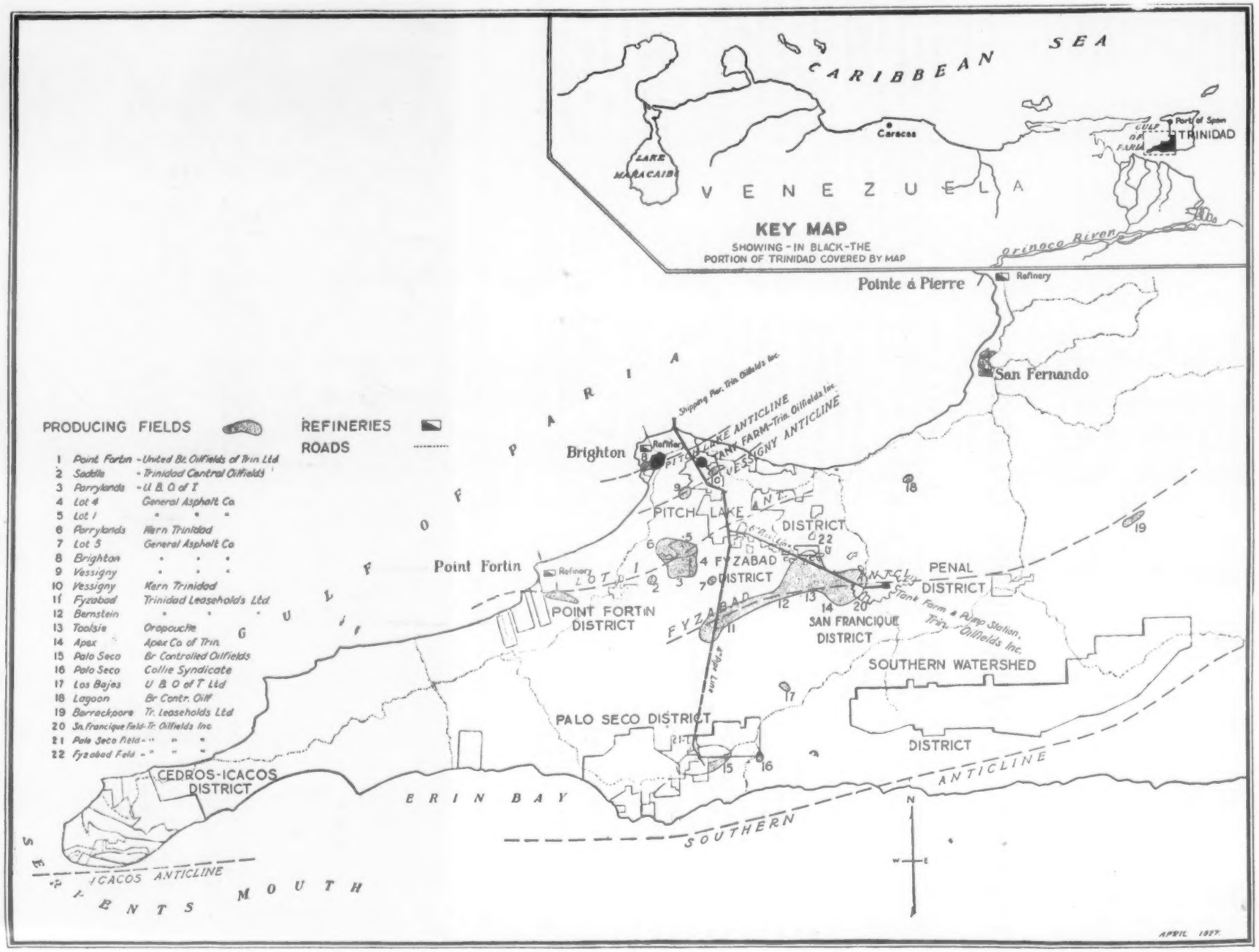
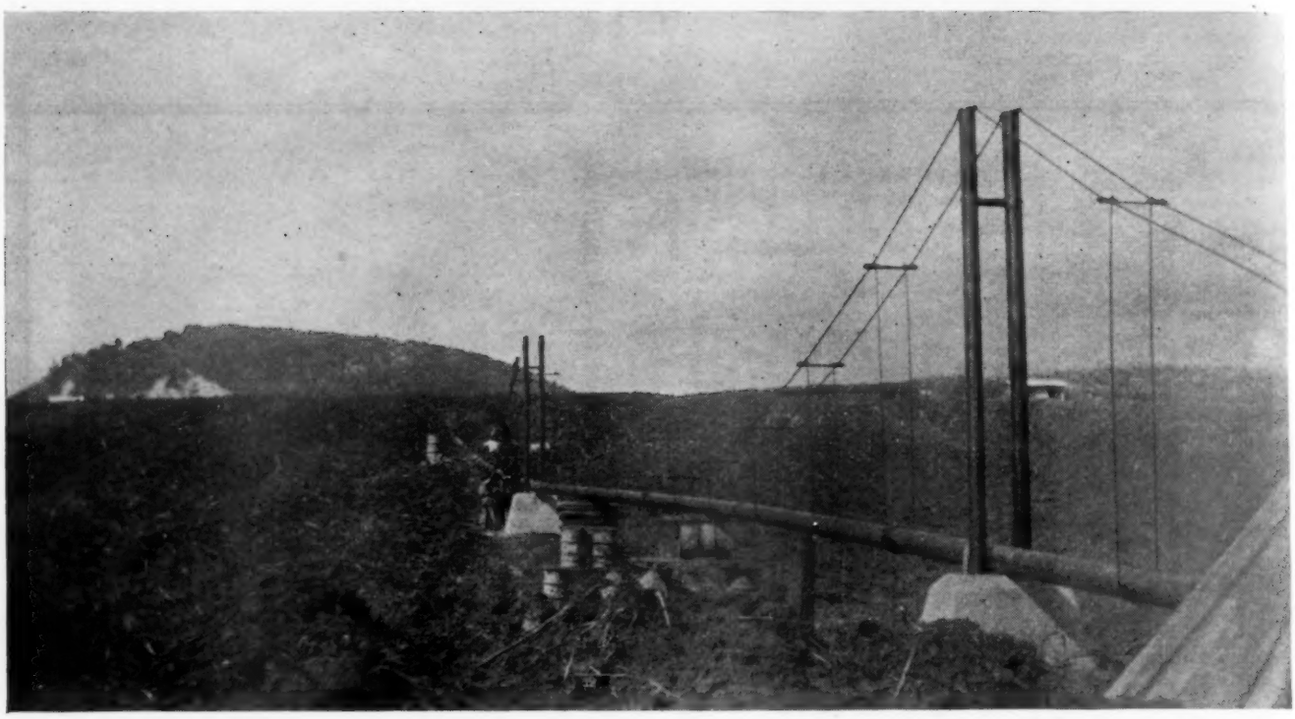




Pipe line construction meets with some difficulties in Trinidad. This is a 10-inch line with Victaulic joints, from Forest-Reserve to Pointe-a-Pierre.

Company, Ltd., C. L. Vandeburgh, manager, Brighton.

Trinidad Central Oilfields, Ltd., F. Middleton, manager, Tabaquite.

Kern Trinidad Oilfields, Ltd., A. F. Strickland, manager, Guapo.

Trinidad Petroleum Development Company, Ltd., and British Controlled Oilfields, Ltd., Capt. Jas. A. Goodwin, manager, (Phillipine) San Fernando.

The producing properties of Petroleum Options (1925), Ltd., and Trinidad Oil Producing & Refining Company, Ltd., at San Francique and Fyzabad, have been acquired by Trinidad Oil Fields Operating Company under joint operating contracts. The assets of Trinidad Freeholds, Ltd., and of General Petroleum Company, Ltd., were acquired by Leaseholds during 1926 and 1927. The properties of Trinidad Friendship Petroleum Company, Ltd., have been the subject of litigation between Petroleum Options (1925) Ltd., and Venezuelan Consolidated Oilfields, Ltd. It is said, however, that a compromise has been arranged whereunder the lands will be assigned to Falcon Oil Corporation, a newly-organized syndicate of American interests which is assembling men, rigs, and materials for an early entry upon a development program. The Venezuelan Consolidated and Falcon companies are represented locally by J. F. Swingle, whose temporary headquarters are at San Fernando. Charles C. Stollmeyer, a local capitalist, who has figured prominently in the development of the Colony's asphalt and petroleum resources, has recently acquired from W. B. Collie a tract of 500 acres in the Palo Seco District, on which are located a number of small, shallow producing wells, and on which a deep test is now being drilled.

Refining Activity

Trinidad Leaseholds, the largest refining company in the Colony, has extensive storage, refining and shipping facilities at Pointe-a-Pierre, near San Fernando. A Dubbs cracking unit was added to its plant last year; and a third cracking still is now under construction. At its completion, Leaseholds' refining capacity will be increased from around 12,500 barrels to around 14,000 barrels per day. Leaseholds' facilities are also being extended by the construction of a 10-inch pipe line from Forest Reserve to Pointe-a-Pierre; and a number of 55,000-barrel storage tanks are being built at the latter point. In addition to its own production at Forest Reserve, Fyzabad, Barrackpore and Guayaguayare, Lease-

CRUDE OIL PRODUCTION OF VENEZUELA

	AMBROSIO				LA ROSA FIELD				PUNTA BENITEZ			
	Lago	Gulf	V. O. C.	Total	Lago	Gulf	V. O. C.	Total	Lago	Gulf	V. O. C.	Total
January	72,873	99,936	3,926	176,735	293,430	683,549	1,171,172	2,148,151	82,073	6,854	...	88,927
February	1,450	4,707	21	6,178	195,117	491,869	956,574	1,643,560	64,576	12,215	...	76,791
March	4,483	2,370	...	6,853	235,283	503,203	721,437	1,459,923	92,852	23,546	676	117,074
April	...	2,445	...	2,445	329,534	455,068	459,308	1,243,910	81,803	19,767	...	101,570
May	55,604	4,196	...	9,800	263,758	536,581	563,035	1,363,374	76,545	27,207	...	103,752
June	6,730	2,250	...	8,980	293,297	600,794	665,378	1,559,469	54,901	22,454	...	77,355
July	14,376	1,515	...	15,891	239,703	492,804	926,221	1,658,728	71,273	19,505	...	90,778
August	17,404	1,725	...	19,129	175,758	576,088	726,471	1,478,317	60,755	17,730	...	78,485
September	2,800	810	...	3,610	187,066	376,232	870,727	1,434,025	44,655	16,980	...	61,635
October	9,278	1,515	...	10,793	220,079	318,769	1,080,955	1,619,803	55,139	17,531	...	72,670
November	8,066	...	...	8,066	366,963	343,592	999,611	1,710,166	109,108	16,447	...	125,555
December	3,363	480	...	3,843	351,653	510,138	1,128,432	1,990,223	133,113	18,573	...	151,686
Totals	146,427	121,949	3,947	272,323	3,151,641	5,888,687	10,269,321	19,309,649	926,793	218,809	676	1,146,278

holds also purchases the entire output of Apex (Trinidad) Oilfields. The Leaseholds Company is operating about eight drilling rigs and owns around 85 producing wells, the average production from which is said to be in excess of 4,000 barrels per day.

United British Refineries, Ltd., a Dutch Shell company, owns a small topping plant at Point Fortin, which is served by a pipe line entering the Los Bajos, Palo Seco, and Parrylands fields. This company purchases the production of United British Oilfields, Kern Trinidad Oilfields, British Controlled Oilfields and Charles C. Stollmeyer. Field operations are in charge of F. J. Shaver, of California. A number of heavy California type rigs were imported about six months ago; and, apparently, an effort is being made to increase the company's production, now said to be averaging around 700 barrels per day.

The oil operations of the Trinidad Lake Petroleum Company, Ltd., and Petroleum Development Company, Ltd., subsidiaries of the General Asphalt Company, seem to be conducted as a profitable side-line to the production of asphalt from the famous Pitch Lake concession, at Brighton. It is said that little or no effort is made to extend the company's land holdings beyond the immediate vicinity of its pitch mining operations. In fact, some 1,400 acres of semi-proven acreage has been sub-leased to Trinidad Oil Fields Operating Company. The Asphalt subsidiaries have an average of around 500 barrels per day of oil production at Brighton and Morne L'Enfer Forest Reserve, from which a short pipe line extends to a 1000-barrel topping plant located at Brighton. These associated companies usually operate about three drilling rigs.

Operating Efficiency

Apex (Trinidad) Oilfields probably is the largest producing company on the island; and it is, in many respects, the most conspicuously successful. Its production, all of which is sold to Trinidad Leaseholds, is said to average between 5,000 and 6,000 barrels per day from properties located in the San Francique District. Figures contained in a report to the directors for the year ended September 30, 1926, indicate that lifting costs have ranged during recent years from 50 to 70 cents per barrel; and that 69 wells drilled up to that date cost an average of $30,000 per well. These wells range from 1000 to 2000 feet in depth. Apex stockholders received dividends totaling 50 per cent during last year; and it is rumored that they expect to receive a further disbursement of 100 per cent for the year ended September 30. This will bring their returns up to a total of 235 per cent. Col. H. C. B. Hickling, local manager, in a report to directors and stockholders, estimated the economic life of Apex wells at from 15 to 20 years. The company is now operating around 80 producing wells, and is running six drilling rigs.

Kern Trinidad Oilfields, Ltd., an offshoot of the Kern Trading & Oil Company of California, operates in the Guapo District, near Point Fortin; and sells its production to the United British Refineries, Ltd., at the latter point.

The Trinidad Petroleum Development Company is expected to figure prominently in the development of the Palo Seco District, which has been given considerable impetus by the success of deep drilling done by Trinidad Oil Fields Operating Company, the newcomer. Its production of around 500 barrels per day is sold to the United British Refineries.

The numerous producing sands of Trinidad range in depth from around 300 feet at Forest Reserve and Tabaquite, to 2700 feet at San Francique and Palo Seco. Very few wells have been drilled to depths of more than 3000 feet; and when one hears the phrase "deep test" in Trinidad he must remember that, quite likely, the reference is to a depth of around 2500 feet. Local geologists assert that there are a number of potential oil-bearing sands lying below the depths heretofore explored. Although the pioneer operators of Trinidad, many of whom hailed from Pennsylvania, used cable tools in their drilling operations, the rotary method is now used almost exclusively, generally, are ideally suited to the slush except in the shallow field at Tabaquite. The formations are soft and, method.

Drilling crews usually are composed of one driller, seven Creole or negro laborers, and one water-carrier. The standard wage for drillers approximates $12 per day; and the native crews are paid about as follows:

Headman	$2.40
Derrickman	2.04
Fireman	1.80
Floorman	1.68
Water carrier	.60

The oil production of Trinidad now averages around 18,000 barrels per day.

Navy Would Buy Elk Hills of Standard

Washington, D. C.—Legislation permitting the Navy Department to secure full possession of all lands within Naval Reserve No. 1 at Elk Hills, California, by the exchange therefor of other government oil properties, was urged last week by Secretary of the Navy Wilbur, appearing before the House Committee on Naval Affairs. Secretary Wilbur explained that the legislation now sought is a modification of a measure introduced in congress some time ago.

Standard Oil Company of California controls certain sections of land within the reserve, and if wells were put into operation thereon, the oil under other sections would be drained to the detriment of the government reserves, he said. The committee was told that it is estimated that between 600,000,000 and 700,000,000 barrels of oil are recoverable from these reserves.

The Navy seeks authority either to make an exchange of lands or to pay for the holdings of the Standard Oil Company with royalty oil derived from the neighboring reserve at Buena Vista Hills, Calif. The Secretary explained the Navy's present policy of conserving oil in the ground for use in the event of an emergency or at such time in the future as commercial supplies may be depleted. The Standard Oil Company, he stated, is reluctant to accept royalty and abandon its present holdings.

BY FIELDS AND COMPANIES FOR 1927

LAGUNILLAS FIELD				MENE GRANDE	EL MENE		CONCEP-	TARRA	GUAN-	TOTALS
Lago	Gulf	V. O. C.	Total	C. P. Co.	B. C. O.	LA PAZ V. O. C.	CION V. O. C.	& ORO C. D. C.	OCO N.Y.&B.Co.	All Companies
503,889	264,997	464,330	1,233,216	525,233	248,006	25,049	153,567	6,170	31,351	4,636,405
697,012	377,575	639,586	1,714,173	503,873	200,280	102,345	33,741	5,643	19,296	4,305,885
639,532	422,401	928,950	1,990,883	582,531	228,352	23,365	133,576	7,034	36,099	4,585,690
686,662	356,985	997,915	2,041,562	533,611	196,395	7,832	116,059	8,561	28,254	4,280,199
757,465	400,403	980,677	2,138,545	603,944	206,474	51,583	80,551	12,204	32,714	4,602,941
621,155	604,940	963,219	2,189,314	659,138	192,598	187,736	99,113	11,246	30,520	4,846,469
1,021,140	660,927	977,235	2,659,302	564,518	189,832	...	...	7,992	25,529	5,212,570
1,204,388	612,381	784,147	2,600,866	708,300	210,011	...	...	8,395	24,045	5,127,548
1,318,343	753,845	724,764	2,796,952	933,290	200,968	...	17,175	6,984	25,513	5,480,152
1,437,276	850,151	577,938	2,865,365	1,394,870	192,230	...	...	8,676	23,532	6,187,939
1,462,543	1,226,610	565,522	3,254,675	1,483,871	202,409	...	...	8,899	20,000	6,613,641
1,610,921	1,139,443	590,361	3,340,725	1,325,117	207,529	...	...	15,379	20,000	7,054,502
11,960,276	7,670,658	9,194,644	28,825,578	9,818,295	2,475,084	228,910	633,782	107,188	316,853	63,133,941

Main Street, Pangkalan, Sumatra.

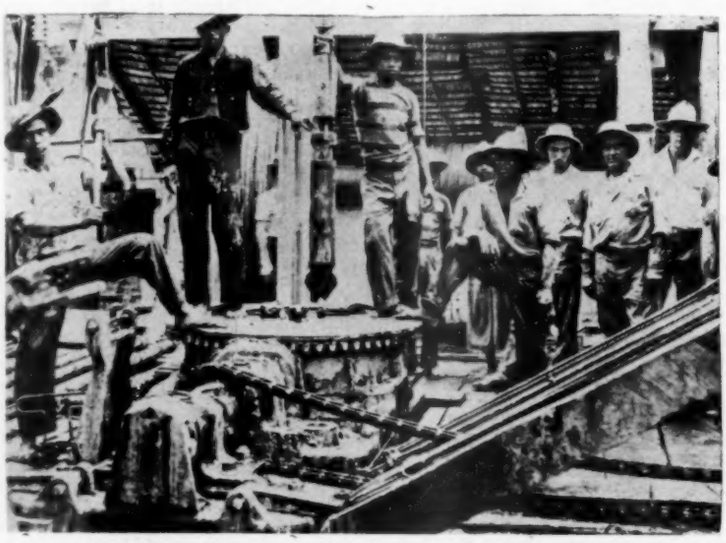
Lower Formations in Sumatra Hard to Handle

Drill stem cemented at 2972 feet after drilling down with collapsible bit and 26-pound mud, in deepest hole on island

By J. D. ISAACKS

DE BATAAFSCHE PETROLEUM MAATSCHAPPIJ recently drilled and set pipe to a record depth in well No. 246 at Perlak, in the province of Brandan on the Island of Sumatra, Dutch East Indies. This record depth was made possible by drilling to the 2972-foot level with the drill pipe in the hole all the way down, without removing it. When this level was reached, the drill pipe, which was eight-inch, was cemented in place.

The Island of Sumatra, like the other locations in this territory, presents many difficult obstacles in drilling. The regular producing horizon is around 1700 feet. Below this depth a great stratum of heaving shale is encountered, and along with it much gas and considerable showings of oil. So great are the obstacles to drilling to lower formations than that of the producing level, that very little successful drilling has ever been done below 1700 feet. This well at 2972 feet so far is the deepest ever drilled on the island by some 727 feet, and the company is going on down with a reduced hole.



Drilling Crew on Well No. 246, Pertack, Sumatra.

Due to the many difficulties found in high gas pressure areas and other causes, some unusual practices were tried out and found to be successful. To get some idea of the precautions that were observed, the following quotation from a letter from L. D. O'Brien will serve:

"Over 500 tons of Baroid were used in this well." A 26-pound mud was used, which in itself is evidence of unusual conditions.

A steel derrick and rotary drilling rig were used. The eight line blocks with eight wire lines, carried at the final drilling 60 tons of drill pipe. Three 45-horsepower boilers were used. Two heavy duty mud pumps, compounded to give 1500 pounds pressure, were used from the time the well was started until the drill pipe was cemented at the depth mentioned above. This was necessary because showings of gas and oil were encountered all the way

Above—Pile of Baroid. Five hundred tons were used in this hole.

Left—View of B. P. M. Well No. 246.

down. After the mud was returned by the pumps, 11 native laborers were required to keep the mud moving in the return ditch to the pit.

Couldn't Come Out

Satisfactory production has been found in this northern field at varying depths, but it was thought that still bigger results could be had if the lower strata could be tested. However, all drilling below the safer depths had resulted in failure, due to the fact that each time the drill stem was pulled out of the hole, the heaving shale would fill the hole and the work was to be done over again. The operating company, which is one of the Royal Dutch group, through their Roxana agents in the United States, planned a campaign to reach these lower formations. Four Carter collapsible bits were bought, as well as a liberal supply of cutters. With these bits it was thought possible to continue drilling until the required depth was reached.

At the start, eight-inch drill pipe weighing 46 pounds per foot was used. The bit head was welded onto the bottom of the drill pipe. From the start, this bit head was kept in the hole. The cutter carrier was pulled out through the drill pipe when cutters needed replacing. The fact that the drill pipe could be kept in the hole and the rotary and pumps operated all the time, allowed the operators to effectively keep hole, and with the heavy mud used, to build up an excellent resistance to the gas which was frequently encountered.

One of the accompanying pictures shows the welder placing the bit head on the drill pipe. While cutters were being

(*Continued on page* 88)

Right — Heavy duty equipment required to handle formation in Sumatra.

Below — S. J. Van Haguenam, territorial chief, L. D. O'Brien, driller, and the geologist for the company.

Modern Methods More Prominent in Russian Operations

Professor John N. Strigeoff, chief director of the petroleum industry of the Union of Socialist Soviet Republics reviews development in an interview with

JACK LOGAN
Staff Representative

ANSWERING questions on quantities of production, drilling methods, wildcat operations, prospective producing territories, pipe lines and refineries, and commenting on the Soviet policies and plans, Professor John N. Strigeoff, chief director of the petroleum industry of the Union of Socialist Soviet Republics (Russia), gave out a comprehensive and illuminating interview on the oil industry of his country while stopping for a week in Houston the early part of February, this year.

Professor John N. Strigeoff.

His sojourn in Houston was part of a six-months' visit in the United States. He left Russia about September 1, 1927, spent approximately one month in Germany and France, and then came to America. In this country his itinerary included the oil fields of Pennsylvania and Ohio; the University of Oklahoma; Cushing and various other Oklahoma oil fields; El Dorado, Kansas; and the fields of the Texas Panhandle and North and West Texas. With Houston as temporary headquarters, he visited the Blue Ridge, Pierce Junction and Spindle Top fields. His plans after leaving Houston were to go to Shreveport, Louisiana, and then to California. He expected to sail from New York to Russia about the first of April.

Professor Strigeoff is thoroughly educated in English. Prior to the beginning of this tour he had never been in the United States.

UNDER the Soviet regime, the government owns the land, and the entire oil industry, exploring producing, transporting, refining and marketing, is in the hands of the government. The industry was nationalized in May, 1921. The marketing is under the control of a syndicate called the Neftesyndikat. Field operations, refineries, storage, pipe lines and transport are under the supervision of one large syndicate, with offices in Moscow, the syndicate being composed of six oil trusts. Each of these six trusts is managed by a board of directors, the chairman of the board, appointed by the central government, being in more or less unlimited power.

These six oil trusts are as follows: Azneft, operating in the Baku region; Grozneft, operating in the Grozny district; Embaneft in the Ural-Emba district; Turkmenneft, in the Turkmen district in Asia, east of the Caspian Sea; Kubcherneft, in the Kuban-Black Sea district; and Uzbekneft in the Uzbek district, Mid-Asia.

According to Professor Strigeoff, Russia is now producing oil at the rate of 91,000,000 barrels a year, which is approximately 20,000,000 barrels more than the domestic requirements. The surplus is being exported, most of it going to Mediterranean ports.

Operating Program

Under the Soviet management, oil production is carried out according to a program that has been mapped out. According to that program during the past five years there was to be an increase of 20 per cent. per year; and during the next five years the increase is to be about 12½ per cent. annually.

According to the latest figures compiled by the government, the demand for oil in Russia is increasing at the rate of 10 to 11 per cent. a year, and production is increasing at the rate of 12½ to 20 per cent.

Of the six oil producing districts the principal one is Baku, the trans-Caucasian field located on the Apsheron Peninsula, which juts into the western edge of the Caspian Sea. The present rate of output of that district, according to Professor Strigeoff, is 60,000,000 barrels of oil, plus the equivalent of 2,000,000 barrels in natural gas. This is the highest rate at which the field has produced for 15 or more years.

Baku Was Shrine of Pilgrims

The history of Baku is one of the romances of the story of petroleum. For a thousand years before the birth of Christ men knew of the oil and gas seepages in the district; and they made it a sacred center, going to it on pilgrimages and burning torches and erecting temples there to the gods of fire. The first attempts to produce and refine the oil for commercial purposes were made in the 18th century, but it was not until 1863 that commercial production actually began, at which time a small refinery began operating at Baku on hand-drilled wells. In 1871 the first well drilled by machinery was completed as a large flowing well. Thereafter many more wells were drilled, and the area developed into a great oil producing district. In 1901 it reached the peak of 81,000,000 barrels; five years later was producing around 60,000,000 barrels; and by 1914 had fallen off to less than 50,000,000 barrels. After the war the annual production dropped to around 20,000,000 barrels. Since then it has gradually increased to the present output.

Baku is noted for its large number of producing horizons. In that district there are 17 principal producing sands, and the total number of known sands is over 50. The average depth of the producing sands is around 1700 feet, and the deepest well is about 3600 feet deep.

The second most important producing district of Russia is Grozny (or

Grosni), located 300 miles northwest of Baku, being on the north flank of the Caucasus Mountains and west of the Caspian Sea at a point about half way between Baku and the mouth of the Volga River. The Gronzy district was opened for production on completion of the "gusher" in 1903.

Well Yields 15,000,000 Barrels

In Gronzy the average depth of the wells is 2500 feet, and the deepest one is 4551 feet. This district is noted for its "gusher" production and the long life of its wells. It is in the old Gronzy field that Russia's most prolific oil well is located—Well No. 54 on plot 147. It recently quit producing, but only after it had yielded 15,000,000 barrels of oil through the 10-year period from 1917 to 1927. Twelve and one-half million barrels were recovered and run into tanks, and two and one-half million barrels were burned in two big fires. Outside of several amazingly prolific wells in Mexico, this producer in the Gronzy field has the distinction of being the most productive well in the world. It was drilled to 3549 feet, the diameter of the hole being 10 inches. Water was shut off at 3500 feet. It was drilled by engineers A. W. Ivanoff, manager, and N. W. Sorokin, assistant manager.

The third major producing district of the Soviet government is the Ural-Emba district, off the northern shore of the Caspian Sea, between the mouths of the Ural and Emba Rivers, and about 200 miles east of the mouth of the Volga. The district was opened for production by British interests in 1910 by the drilling of the flowing well in the Dossor pool, the principal producing spot of the district.

Salt Domes

In connection with the production in the Ural-Emba district, it may be of interest to point out that it is a salt dome country. Dossor is the principal known dome of the district. Novobogatinsk is also a known dome. Up to the present, however, there has been very little production there. Makat, also in that district, is supposed to be a dome.

There are no salt domes in Grozny or Baku. In the latter district, however, there are domes of shale, resembling salt domes, but being sedimentary rock, of lower Tertiary form.

Passing now to the activity of the Turkmenneft, one of the two trusts which operates east of the Caspian, we find that its most important producing area is the Island Cheleken, which is across the Sea, east of Baku. The first production was obtained there in 1911. In this vicinity there are, besides Cheleken Island, two new interesting fields: Neftedag and Boidag. Some wildcat drilling is being done at Neftedag, and exploration work has been planned for Boidag.

The chief production of the Uzbekneft, which operates in the Uzbek republic, in mid-Asia, farther east than the operations of the Turkmenneft, is at Chimion and at Santo. These districts are about 1000 miles due east of the Caspian Sea. In Uzbek there is some wildcatting activity.

Wildcats

In the past wildcat operations have constituted only a negligible part of the activity in Russia, because of the abundance of un-recovered oil in the proved fields, and the certainty with which new wells could be completed. But the Soviet government is now spreading out and doing considerable exploration work, according to Professor Strigeoff.

In the Ural-Emba district wildcat tests are being drilled in six places. In Crimea there are two wildcat operations. One is being drilled on the south flank of the Caucasus Mountains near Batoum on the coast of the Black Sea. And farther north, across the Mountains in the Kuban-Chernomor district, where the Kubcherneft operates, numerous wildcats are being put down near the Black Sea.

In the Azerbaidjan republic, near the mouth of the Koura river, and not very far from Baku, there are many wildcat tests drilling now.

On the new anticlinal folds in the

This Year's Crude Imports

THE estimate of 70,000,000 barrels of crude oil imports, contained in THE OIL WEEKLY of March 16, has been criticized by some authorities as being too low—and in the light of information secured after the article was written, it is very probable that it was too low.

Estimates on crude imports in 1928 range from below 70,000,000 to 140,000,000 barrels and what have you.

Most of the estimates are based, not upon what the petroleum situation would warrant in the way of imports, but largely upon how much oil can be taken over the bar at Maracaibo.

During the past week we have made considerable inquiry into prospective imports. We find one company estimating it at 86,000,000 barrels, with all of this amount but 23,000,000 barrels coming from Venezuela and Colombia. Another company estimates that it will run 140,000,000 barrels or higher, figuring also upon an increase in imports from Mexico. However, it is only fair to say that all other authorities consulted expressed the belief that Mexico's exports to the United States will be below that of last year.

Still another authority thinks that the imports will run around 93,000,000 barrels.

He says that Venezuela alone can be expected to produce and export 110,000,000 barrels this year, as compared with 50,000,000 last year; that about half of this can be brought and will be brought to the United States; that Colombia will produce about 15,000,000 barrels, of which a material part will come into the United States, with the balance coming from Mexico and Peru.

This estimate of 55,000,000 barrels from Venezuela is based upon the amount of shallow draft tankers to move oil over the bar at Maricaibo. There are not enough tankers to move at that rate at this time, but his estimate took into consideration those being built and delivered during the year.

Of course a greatly increased crude import figure over the figures estimated in THE OIL WEEKLY of March 16 (which were 12,000,000 over the actual imports of 1927) will affect the general conclusions as to the amount of domestic crude necessary to furnish our 1928 gasoline requirements, but such an increase will not affect the amount of domestic crude used as much as one would first think, because of the comparatively small gasoline content of Venezuelan crude.

The greatest effect of largely increased imports of South American crude likely will be a further weakened fuel oil market.

Grozny district the Soviet has about 12 wildcat operations. There are 20 of the anticlinal folds in the district, and there is exploration work on nine of them.

One very deep wildcatting well is drilling now near Petrovsk, on the coast of the Caspian Sea. The oil sand which is the objective of the test is supposed to be 5250 feet below the earth's surface.

Besides the areas on which the wildcats are being drilled there are extensive stretches in the Caspian Sea region which are considered favorable for prospecting. All around the edge of the sea, from Baku south, along the northern shore of Persia, and back up the Caspian shore to Cheleken Island—all of that territory is looked upon as probable productive acreage.

And, it is likely, according to Professor Strigeoff, that there will be production eventually up the Volga—the region that is sometimes referred to as "the great unknown." In that part of the country, said the Soviet oil chief, the most promising sections are Oufa, Samara, and a few other provinces, where there are large anticlinal folds with slightly angular dip, the age being upper carboniferous and lower permian.

In the search for new oil lands, the Soviet government is making use of the four principal exploration methods employed in the United States: the seismograph, torsion balance, the magnetic method and the electric method.

Refineries

In addition to refineries at Baku and Grozny, the Soviet is operating refineries at Krasnodar, Chimion, Nigeni Novgorod, and Taroslavl; and is building new ones at Batoum and at Touapse. The Batoum refinery will use crude oil brought in by pipe line from Baku, and that at Touapse will refine crude piped in from Grozny.

Since the principal Russian fields are near the coast of the Caspian Sea, much of the transportation is by water. The tankers move northward in that sea, through the mouth of the Volga and up the river to supply the interior markets; and much of the movement of oil is by rail. A large portion of the export oil, moving from Baku and Grozny to the Black Sea, is still handled by railroad. But rail rates are high, and the logical way of transporting the crude is by pipe line.

Pipe Lines

Present facilities between the fields and the Black Sea include only an eight-inch line from Baku to Batoum, a distance of 560 miles. But the Soviet is building another line—a 10-inch—paralleling the eight-inch line between Baku and Batoum. This 10-inch line will be completed next year, according to present plans; and when it is completed, a second 10-inch line will be laid parallel to the other two lines.

Serving the Grozny district is an eight-inch pipe line leading to the Caspian Sea, a distance of 100 miles; and a 10-inch line was started last year—a line which will extend from Grozny to the port of Touapse on the Black Sea. This Grozny-Touapse line will be 340 miles long. The plan is to complete the line in October, this year.

In laying pipe lines, the Soviet government is using American ditching machines, and the pipe is put together by acetylene welding, the use of screw pipe having been abandoned.

Drilling Methods

In the Russian drilling operations the old free-foll system, which was used exclusively as late as 1914, has been almost completely superseded by rotary and cable tool methods. Most of the machinery now in use is American and American type. Through the increased use of the modern equipment drilling costs are now less than one-half of what they were four of five years ago.

Baku and Cheleken Island present greater drilling difficulties that the other fields, because of the unconsolidated Tertiary sediments and numerous water sands. In those fields most of the drilling is done by rotary. Cable tools were tried but did not prove satisfactory. Since the wells at Emba are drilled through beds of salt and gysum, the rotary is most suitable there. Grozny lends itself favorably to cable tool drilling because of consolidated sediments.

Production Practice

Along with the advances in drilling methods, the Soviet government is effecting great savings by expanding its practice of pumping wells instead of bailing them. In the Baku district over one-third of the production is now obtained by pumping. Scarcely any pumps were in use a year ago. About a tenth of the field's production is from flowing wells, and the remainder is lifted by bailing and air lift. The bailing method, which was responsible for over half the production at Baku a year or so ago, is going into the discard and will be abandoned entirely within a few years. After the period of flush production in the district bailing and air lift methods were instituted, and the force pumps were tried but proved unsatisfactory because the loose sands wore them out too rapidly. Since the adoption of modern methods of drilling and completing wells, however, the sand trouble has been eliminated, and the force pumps may be used economically.

In the Grozny field about two-thirds of the production is from flowing wells, and the remainder is lifted largely by the new pumping method.

In connection with the drilling program, Professor Strigeoff pointed out that the locations of the wells are made on a scientific basis, with the view of effecting the greatest economy. They are carefully spaced to avoid over-drilling; and when the top of a dome is discovered, wells are first drilled around the water edge, and the production is gradually extended inward, holding up the gas pressure.

All drilling is done by the government, and no concessions are granted to private interests for drilling either in the proven fields or in wildcat areas.

Labor Costs

Most of the workers in the Russian fields are Russians. They are paid according to a scale of considerable range. Considering all the workers, the average salary is about 75 rubles a month, equivalent in American money to $37.50.

The government is spending large sums of money for the education and training of its employees and prospective employees. Among the schools which it has established is the Oil Scientific Research Institute at Moscow, the cost of which was one-half million dollars. Professor I. M. Goubkin is at the head of the school. The government also maintains the Academy of Mines at Moscow. The teaching of petroleum production in these schools is said to be more comprehensive than in most of the American schools, comprising thorough courses in all branches of the petroleum science—discovery, production, and refining.

Professor Strigeoff became actively engaged in the Russian oil industry in 1898, thirty years ago. Prior to that he was graduated in Moscow University, where he studied the natural sciences, majoring in geology. For twenty years he was head of an oil company in Grozny. Five years ago he became a lecturer in the Moscow Academy of Mines, and was made a professor of that institution last year. He has been Chief Director of the Petroleum Industry of the Union of Socialist Soviet Republics for two years.

Cosden Buys Production in Wilbarger County

Wichita Falls, Texas.—Cosden & Company has purchased the producing properties and undeveloped acreage held by the Milham Corporation of Texas in the South Vernon district, Wilbarger County, effective March 15 for a cash consideration of $550,000. These properties involve 788 acres of leases on the W. T. Waggoner ranch, with 47 pumping wells making an average of 900 barrels of 36-38 gravity oil daily. More than a half dozen separate oil producing horizons have been established in this district, and approximately 100 locations are available for drilling on the newly acquired property. This purchase is in line with the recently announced policy of J. S. Cosden, president of Cosden & Company, to acquire settled high gravity oil producing properties in the Mid-Continent district. Headquarters of Cosden & Company are maintained at Fort Worth, with A. G. Reed in charge of operations.

"The Cosmopolite Driller"

Near Old Oran, on Sahara sand,
He "dug" a wildcat hole;
Then at Algiers, in recent years,
He played the driller's role.
With an Indian tribe on the towering side
Of Santa Maria Hill
He pushed the bit in a worthless pit.
That's wrecked in Colombia still.
The tropical heat has a blistering beat
For work in Bolivian wastes;
And the white man's toil diggin' Pampa soil
Don't please even drillers' tastes.
On a boat from Rio to Rosario
Is the only course for man;
Then from there they go on a slow burro
Up the trail to Tucuman.
'Tis a grand old scene in the Argentine
With jungles and hills galore,
But it's pure dee hell to drill a well
With nature paddin' the score.

J. N. Fanning, originated in the Mid-Continent fields but has followed the trail of the wildcat from northern Africa to the Argentine with many stops in between. A few of his experiences as told to

WALLACE DAVIS
Staff Representative

J. N. Fanning, who entered the oil business 16 years ago at the age of 16, well deserves the name "The Cosmopolite Driller" he has been dubbed. In the spring of 1919 when he went into North Africa to drill prospective oil lands for the School of Mines of France he was reputed to be the youngest driller to go from the United States to a foreign field in charge of operations. At that time his experience amounted to seven years work in Mid-Continent fields, during which time he served as a roustabout, tool dresser and driller on many wells in Kansas and Oklahoma.

"Cosmopolite" Fanning is "wintering" in Tulsa now, and, in keeping with his record of having a varied past, he is directing traffic at the corner of Boston Avenue and Fifth Street for the Tulsa police force. The force will admit he has had good training for the job. Drilling wildcat locations in five countries scattered between three continents, dealing with natives of 32 countries and islands, defending oil field camps against invasion from everything from mountain lions to boa constrictors, and shooting crocodiles for practice in pastime, were all good practice for a job of maintaining order among civilized people.

"Blew" Out of Africa

Fanning left North America following the well known glycerine explosion May 18, 1920, of which he was the sole survivor of the crew, five Americans and three natives having been killed. During his year of wildcatting for the French mines school he drilled near Algiers and Oran.

On his return from Africa he went with the Humphreys Corporation, which was wildcatting near Mexia. At that time the concern was having trouble with the Rogers 1, later the discovery well at Mexia field. He took over the work and drilled to the top of the sand. While cement was setting around pipe Fanning had set he received notice of an opening to go to Colombia, the outgrowth of an application he had previously filed. On his arrival in New York he was notified by wire the well had opened a new field.

In Colombia he drilled for the Mid-Colombian Oil & Development Company, 400 miles from the Berranca-Bermeja wells. His location was 900 miles up the

A wildcat drilled by J. N. Fanning of Tulsa in the Department of Salta, Argentine.

The Bermejo camp in Bolivia is an example of the orderly arrangement of development in this country. Photo—courtesy of J. N. Fanning.

Magdalena River. Near Honda, Colombia, he drilled two wildcats, one to 3111 feet and the other to 1500 feet, both dry. At the latter location he supervised the building of 17 miles of road from the Magdalena River to the drilling site for moving equipment to the location.

Six months were required then to get equipment from New York to the location. Unloaded at Cartagena, the deep port of Colombia, it is moved over a narrow gauge railroad to Barranquilla, thence by boat to La Dorada, thence 90 miles further by railroad, and again loaded on a boat, which carries it to Giradot. From there it is taken by train to within a day's run of Bogota by another narrow gauge railroad. The last leg of the trip after leaving the railroad and river is up the river banks on skids, thence by tractor to the location.

Fanning returned to Tulsa after 23 months in Colombia, arriving in May, 1922. In 1925 he contracted to go with the Standard of Bolivia to drill in that country and Argentine Republic, and left New York for Rio de Janeiro, Brazil. From Rio de Janeiro, he went by boat on the Rio de la Plata to Montevideo and Buenos Aires, and thence to Rosario, which he calls the Chicago of South America, from which point further transportation was by train to Tucuman, in the Argentine. Past this point to the drilling location in Bolivia travel was made by combination narrow gauge railroad and burro. Much of Fanning's working time in Bolivia and the Argentine was hampered by tropical fever. Work on one wildcat, the Bermejo 1, has been running some time before his arrival and until recently work was progressing on the fourth hole, the former holes having been ruined by caving. He returned to Tulsa after about a year, due to health conditions in the tropics.

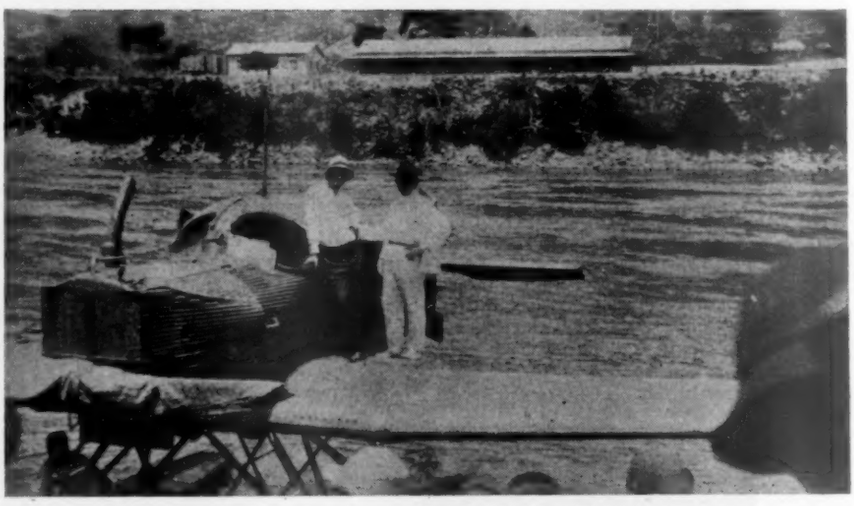
In his drilling in foreign countries Fanning found the Colombian natives make the best crews, explaining that they were good workers and unusually companionable when given a square deal. The problem of getting good foods is explained by him as being a difficult one. At times, when it was impossible to even get American canned foods, they were reduced to living for more than a month on rice, bananas, yucca, papayae, cocoa, mangoes and oranges. While in Colombia they were without mail for 61 days on one occasion.

Fanning's home, 14 North Yorktown Avenue, Tulsa, well illustrates his travels. Mechetas of some of the warring South American and African tribes are lined along the wall in accordance with their various uses. Having had a hobby of taking pictures, he has snaps of scenery in the many countries and islands he has visited. His prize possession is a nine-foot string of beads carved out separately from human bones. This, an heirloom of a famous family of Uraguayan Indians, was given him by the last member of the family, an old Indian woman having no relatives to whom she might hand down the treasured relic, and wanting it to be in friendly hands. With his other relics, Fanning has more foreign money than he could spend in a lifetime if he had to visit the respective provinces from which it came.

Storm Wrecks Derricks at Luling

Houston.—In a severe wind and hail storm early Friday night, March 23, about 125 derricks were torn down in the Luling field. Of this number, about 80 belonged to the Magnolia Petroleum Company, 20 to the Grayburg Oil Company, 12 to Rio Bravo Oil Company, and the others to various operators. The derricks which were wrecked were in a strip running down the center of the field on the north side of the river. All of them were wooden derricks. They will be replaced to a considerable extent by steel derricks.

Besides the wrecking of the derricks, considerable damage was done to buildings in the field and to the electric high-lines carrying power to pumping wells.



Above center—Moving 20-inch pipe to a Bolivian location. Below—A hydroplane used in commuting between Cartegena, Colombia, and the scene of wildcatting 900 miles up the Magdalena River.

Regional Organization Favored by Geologists

(*Continued from page 44*)

imentary Deposition of Petroleum," by F. M. Vau Tuyl and C. F. Garb of the Colorado School of Mines, discussed the deposition of oil in both sea water and fresh water. By using a large assortment of sediments and crude oil, interesting conclusions were drawn, among them the effect of sifting dry sediment upon films of oil on the surface of fresh and salt water.

Mr. Van Tuyl was co-author with Quentin D. Singlewald of a short paper dealing with "The Role of Bacteria in the Formation of Dark Sediments." It was found by the authors, in connection with experiments along another line, that certain bacteria are capable of decomposing both plant and animal matter in salt water into a very well divided dark substance, the exact composition of which is not yet definitely known.

In discussing "The Use of Aeroplane Photographs in Geological Work." Walter A. English, expressed the belief that aerial photography gives much more detail than the older methods of mapping, since the view is entirely unobstructed. He disclosed that aerial photography has been responsible for the discovery of new faults in California.

"Notes on Permian Sedimentation and Correlation," was presented by E. C. Edwards of San Angelo, Texas. His paper dealt with a large Mid-Continent area.

Friday, March 23

The first paper read Friday morning was "Some Structural Features of the East Side of the San Joaquin Valley," by Leo S. Fox of Los Angeles. The paper discussed normal faulting as the dominant feature in the structural history of the east side of the valley, particularly in the Kern River district, with general downthrow movements of crustal blocks to the west. It was further disclosed that the movements have either continued or been intermittently renewed from early Miocene to a recent date, with a resulting effect on sedimentary distribution.

H. W. Hoots, California representative of the fuel section of the United States Geological Survey, read a very interesting paper on "The Santa Monica Mountains, a Major Anticlinal Uplift Adjoining Los Angeles Basin." The paper dealt extensively with the geology of the region and discussed the Modelo formation of the Miocene Age, which is strikingly unconformable on all older formations and is usually composed to a large extent of the hard siliceous and soft diatomaceous types of shale which are sometimes referred to as the source of a large part of California's oil.

"Tectonics of the Valle Grande of California," a paper by Bruce L. Clarke of Berkeley, was read during the morning technical session. The paper discussed the origination of the Valle Grande as a complex fault trough, its existence as a negative area since early Mesozoic times and its faulting and folding.

"The Monteery Shale," a paper dealing with one of the most widely spread formations in California, was read by G. Dallas Hanna of San Francisco. The locality, geographical distribution, lithology, paleontology and bibliography of the formation were discussed by the author.

Southern California

One of the features of the Friday afternoon technical session was "New Developments in Southern California since 1923," a paper by Joseph Jensen and Glenn D. Robertson of Los Angeles. Recent developments in the Inglewood, Los Cerritos, Rosecrans, Seal Beach, Huntington Beach townsite, Long Beach, and Potrero areas were discussed, particularly with reference to the deep sand operations. The paper also pointed out that oil is now being produced from the Miocene in areas where the Pliocene was formerly thought to be the only source.

The rapid rise and development of the Seal Beach field was discussed by R. M. Barnes and W. W. Copp of Los Angeles in their paper on "Geology of the Seal Beach Field." The authors further discussed the structural features, stratigraphy, occurrence of oil and the relation of the structure to topography.

Due to the remarkable depth at which production is obtained in the area under discussion, the paper by F. W. Hertel of Ventura, California, on the "Ventura Avenue Oil Field" was particularly timely and well received. Probably in no other field is the topography so severe, the elevation of the wells varying from about 100 feet to 1100 feet in a very short distance. The sudden plunge of the anticline in both directions from the center of the field in steep depths which range from 30 degrees to 60 degrees on the flanks, was discussed. The oil is produced from the Pico formation of the lower Pliocene age and comes from six oil zones, the greatest of which is the very deep Lloyd sand. The Associated Oil

Paleontologists With A. A. P. G. at San Francisco

San Francisco.—The annual convention of the Society of Economic Paleontologists and Mineralogists was held here March 22 in connection with the Thirteenth Annual Convention of the American Association of Petroleum Geologists. The society is closely related to the geological association, and its members are those geologists extensively interested in paleontology. J. J. Galloway of Columbia University, retiring president, presided at both the morning and afternoon sessions.

The following papers were read:

1. "Paleontologic Studies in the Upper Paleozoic," by Raymond C. Moore.
2. "Brackish Water Pliocene Diatoms From the Kettleman Hills," by G. Dallas Hanna.
3. "Micropaleontologic Formational Divisions of the Upper Tertiary and Pleistocene of Southern California," by G. H. Doane and S. G. Wissler.
4. "Notes on the Paleontology of the Santa Barbara Islands," by Leo S. Hertlein.
5. "A Subsurface Study of the Richfield Oil Field, Orange County, California," by S. G. Wissler and George C. Kuffel.
6. "Some Notes on the Succession of the Marine Invertebrae Faunas of the Upper Fernando, Ventura County, California," by Edward E. Pressler.
7. "Notes on Miocene Paleontology and Stratigraphy of Colombia," by F. M. Anderson.
8. "The Biostratigraphic Aspect of Micropaleontology," by Hubert G. Schenck.
9. "Systematic Micropaleontological Research," by Robert M. Whiteside (read by H. G. Schenck).
10. "Microscopic and Photomicrographic Technique," by G. Dallas Hanna.
11. "A Comparison of the Typical Well Section of the San Fernando Valley with the Los Angeles Basin," by G. H. Doane.
12. "Some Results of a Foramniferal Study of the San Fernando Group of Southern California," by Paul G. Goudkoff.

J. J. Galloway, retiring president, delivered the presidential address Thursday afternoon immediately following the papers. He spoke on "The Change in Ideas About Foraminifera," and traced the study from 500 B. C. to the present time. He illustrated his address with slides showing some of the earliest specimens.

R. C. Moore of the University of Kansas was elected president of the organization. Other officers elected were: Vice-president, G. Dallas Hanna of San Francisco; secretary and treasurer, F. B. Plummer of Fort Worth, and editor, Joseph A. Cushman.

Company recently completed a 3050 barrel well in the field at 7210 feet, making it the deepest commercial producer in the world. It was disclosed that the field has produced more than 44,000,000 barrels of oil and over 130,000,000,000 cubic feet of gas since it was discovered in 1915, and probably will eventually produce a quarter of a billion barrels of oil and 600,000,000,000 cubic feet of gas. The main producing formation is more than 2600 feet thick and the bottom has not yet been reached.

Just how a careful study in sedimentation in certain cases may mean a large saving was shown by Arthur J. Lieje of Los Angeles in his paper "An Ancient Shoreline and its Bearing on the Failure of an Oil Well." Mr Lieje used as an example an old oil well which was drillled north of Los Angeles. The well was started by drillers who were attempting to tap a sandstone which was exposed nearby. They did not, however, consider the sandstone and its relation to a conglomerate lying beneath it and a limestone into which the sandstone verges laterally.

Field Trips

The special train from San Francisco arrived at Los Angeles Saturday at 8 A. M. Special transportation was provided and the members and guests immediately went to headquatrers at the Biltmore.

The field trip included a tour of the principal Los Angeles basin fields. Particularly were the Long Beach and Seal Beach fields of interest. With about 200 wells drilling in the former, the Easterners got a good view of California townlot operations. The field party ate lunch at the La Venta Inn in the Palos Verdes hills, south of Redondo.

The ladies, not desiring to go on the field trip, were guests of the Entertainment Committee in Los Angeles.

The novelty of the dinner dance at the Mack Sennett studio attracted wide interest and the attendance was large.

Early Sunday morning a few special field trips to points of interest were made. The golf tournament for the Bostick trophy was held Sunday at the Rivera Country Club. The scores were not just what they might have been but the change of climate and scenery probably affected the visitors' game.

Humble Uncovers New Dome

Houston—Adding new success to an already impressive record, geophysical exploration as a means of locating oil producing areas has assumed even greater importance through the completion by the Humble Oil & Refining Company of its first test on the Sugarland dome, Fort Bend County, as an oil producer.

This discovery well, the Sugarland Industries 1, was completed on Tuesday of this week for an initial flow of 500 barrels of 26 gravity oil, together with about one and one-half million cubic feet of gas the total depth of the hole being 3536 feet.

No competitive drilling will follow the discovery, since Humble controls all of the nearby acreage and most of it within a large radius. Gulf Production Company has the nearest holdings, consisting of a 10-acre lease about one-quarter mile west of the discovery well and a 100-acre tract one mile south.

The new producer is five miles north of Smithers Lake and about 10 miles southeast of Sugarland, being in the southwest corner of the William Stafford survey.

The location on which it was drilled was developed last fall. The North American Exploration Company, Inc., of Houston, surveying a block of leases for H. C. Cockburn of Houston, identified the area as a dome through use of the torsion balance.

The discovery was later checked and verified by seismograph by the Humble Oil & Refining Company, which held some leases in the vicinity. Following these geophysical tests, Humble also acquired drilling rights on the Cockburn leases, and the first test, which is now producing, began drilling about the first of this year. The land on which the well is located, as well as extensive acreage surrounding it, is owned by the Sugarland Industries.

West Texas Crude Getting Wide Rail Distribution

(*Continued from page* 41)

This is the same rate granted Shreveport plants early this year from the same two loading points.

Standard Oil Company (Indiana) is probably the largest individual purchaser of West Texas crudes in tank cars, although its purchases are restricted to that produced by Southern Crude Oil Purchasing Company and Dixie Oil Company, both of which are indirectly controlled by Standard Oil Company (Indiana).

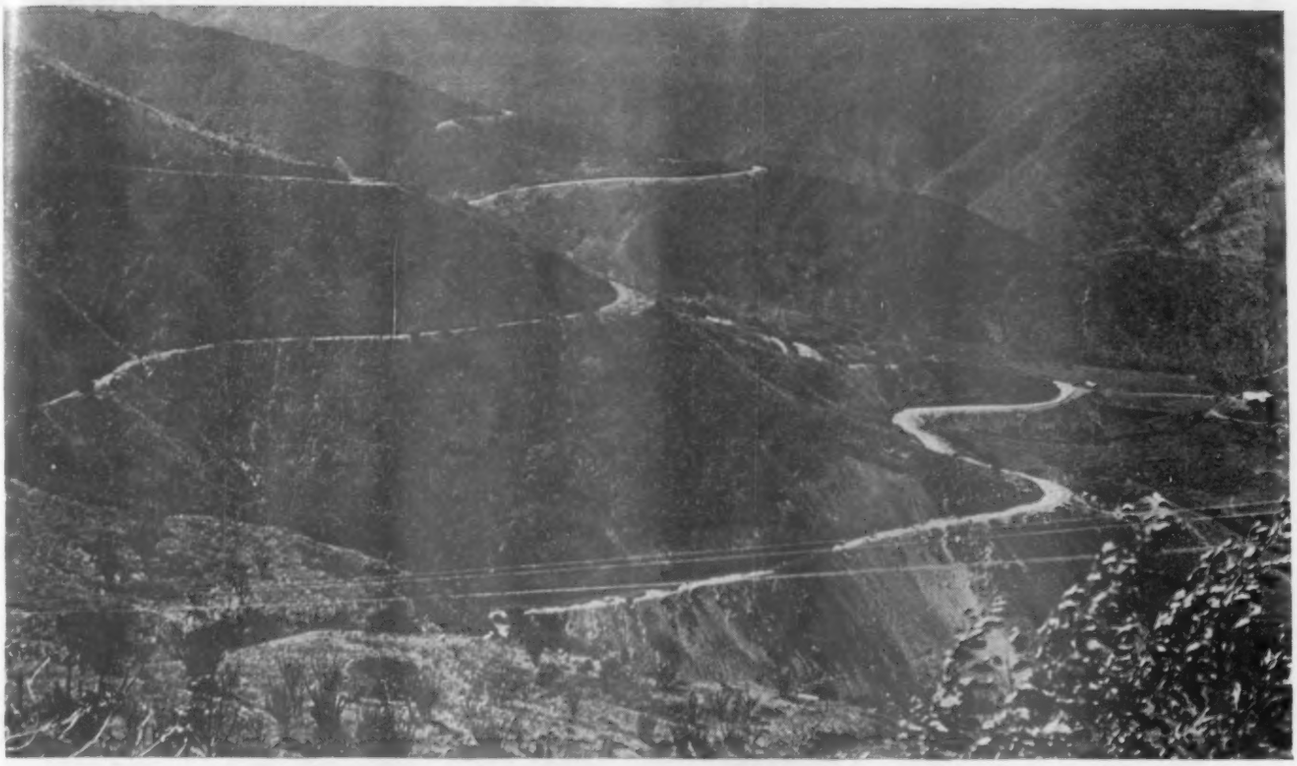
Gulf Production Company is restricting its tank car shipments of West Texas crudes to contract held with Sinclair Refining Company of Louisiana, involving 5000 barrels of Yates field, Pecos County, crude daily. Gulf loads Sinclair's cars at Hurdle, located on the Orient Railroad.

WEST TEXAS TANK CAR RACKS

Tank car racks in use and those available for the loading of crude in the West Texas district are listed below by counties, showing the owners, car capacity and exact location of each rack:

Rack Owner	Railroad Point	Capacity in Cars	Location
	FISHER COUNTY		
The Texas Co.	Royston	5	Sec. 6, W. E. Richardson Sur, Blk. "R"
	HOWARD COUNTY		
Marland Pipe Line Co.	Coahoma	10	Sec. 43, Blk. 30, T&P Ry. Sur., T-1-N
	JONES COUNTY		
Phillips Petroleum Co.	Trent	10	Sec. 36, Blk 19, T&P Ry. Survey
	MIDLAND COUNTY		
Gulf Production Co.	Midland	50	Sec. 41, Blk. 38, T&P Ry. Survey
	MITCHELL COUNTY		
Col-Tex Refining Co.	Colorado	30	Sec. 42, Blk. 26, T&P Ry. Survey
	REAGAN COUNTY		
Big Lake Oil Co.	Texon	40	Sec. 1, Blk 2, University Lands
Reagan County Purchasing Co.	Kemper	15	Sec. 11, Blk. 11, University Lands
Texon Oil & Land Co.	Santa Rita*	30	Sec. 36, Blk. 9, University Lands
	REEVES COUNTY		
Lockhart Brothers et al	Arno	5	
	RUNNELS COUNTY		
Humble Pipe Line Co.	Benoit	10	Sec. 161, ET Ry. Co. Survey
	UPTON COUNTY		
Gulf Production Co.	Hurdle	50	Sec. 2, GC&SF Ry. Survey
Humble Oil & Refining Co.	McCamey	50	Sec. 65, Blk. 35, H&TC Ry. Survey
Humble Pipe Line Co.	McCamey	50	Sec. 65, Blk. 35, H&TC Ry. Survey
Marland Pipe Line Co.	McCamey	40	Sec. 66, Blk. 35, H&TC Ry. Survey
Mid-Kansas Oil & Gas Co.	Hurdle	30	Sec. 19, Blk 1, MK&T Ry. Survey
Orient Oil Operating Co.	Hurdle	5	Sec. 3, GC&SF Ry. Survey
Roxana Petroleum Corp.	McCamey	50	Sec. 12, TC Ry. Survey
Southern Pipe Line Co.	McCamey	72	Sec. 65, Blk. 35, H&TC Ry. Survey
	WARD COUNTY		
The Texas Co.	McCamey	30	Sec. 66, Blk. 35, H&TC Ry. Survey
American Petroleum Co.	Pyote	50	Sec. 81, Blk. "F," GMMB&A Survey
Blue Bonnett O. & R. Co.	Wickett	35	Sec. 21, Blk. "F," GMMB&A Survey
Humble Pipe Line Co.	Monahans	40	Sec. 61, Blk. "A," GMMB&A Survey
Independent Oil & Gas Co.	Pyote	79	Sec. 60, Blk. "F," GMMB&A Survey
Landreth Production Corp.	Monahans	40	Sec. 80, Blk. "A," GMMB&A Survey
Roxana Petroleum Corp.	Monahans	60	Sec. 41, Blk. "A," GMMB&A Survey
Southern Pipe Line Co.	Wickett	72	Sec. 20, Blk. "F," GMMB&A Survey
Texon Oil & Land Co.	Pyote	34	Sec. 100, Blk. "F," GMMB&A Survey

*Moved to Pyote.



La Goajira Highway, Venezuela.

California Producing Companies Active in South America

Drilling has been limited but large acreage reserves are held in Venezuela, Colombia and Ecuador

By BRAD MILLS
Staff Representative

CALIFORNIA oil companies are playing an important part in the development of oil lands in South America. Some work is also being done in Mexico, but the bulk of the pioneering has centered in Venezuela, Colombia and Ecuador. Drilling has been somewhat limited, but huge tracts have been leased in the most promising parts of widely scattered areas.

The Standard Oil Company of California, acting through its subsidiary organizations, has acquired lands in Venezuela, Colombia, Mexico and Ecuador, and is engaged at present in drilling for oil in Venezuela and Colombia.

In Venezuela, about 518,000 acres are held by Richmond Petroleum Company of Venezuela and California Exploration Company. Of the total holdings of both companies, approximately 51 per cent is located within the Maracaibo basin; about 21 per cent is located in the districts of Democracia and Miranda, State of Falcon, and 28 per cent in the district of Maturin, State of Monagas.

The California Petroleum Exploration Company is drilling Neogal 1 well, to the south of the Mene Grande field, on the eastern side of Lake Maracaibo, Venezuela. The well has attained a depth of 3800 feet. It is about a mile northeast of Neogil 1, which the company abandoned at 5121 feet. Another well, Neopig 1, in the west central part of the district of Perija, on the west side of Lake Maracaibo, was abandoned recently at 3993 feet.

Richmond Petroleum Company of Venezuela is drilling Mamon 1-A, about three miles north of Urumaco, in the northerly part of the district of Democracia, State of Falcon. The purpose of the well, which was 3469 feet deep on January 6, is to test the combined holdings in this district controlled by the Beacon-Sun interests and Standard Oil Company of California. The first hole, Mamon 1, about 200 meters from Mamon 1-A, has been shut in since it caught fire after a gas and oil blowout, a little over a year ago.

In Colombia, Richmond Petroleum Company of California and Latin America Petroleum Corporation of Colombia control about 375,000 acres in the Departments of Bolivar and Atlantico, which is in the northern part of the country, and about 9700 acres in the Departments of Tolima and Cundinamarca, which are in the interior of Colombia.

Richmond Petroleum Company of Colombia is now drilling Galapa No. 1, in the Department of Atlantico, about 10 miles southwest of Barranquilla. The well was 685 feet deep on January 7. The company is also moving in materials to drill near Rotinet, in the southern part of the Department of Atlantico.

Latin America Petroleum Corporation of Colombia is drilling Carmen No. 2 on lands belonging to the municipality of Carmen, in the Department of Bolivar. The well was 4417 feet deep on January 7.

In Mexico, Richmond Petroleum Company of Mexico controls acreage located in the State of Nuevo Leon, on the Isthmus of Tehuantepec, in the southeast part of the State of Veracruz, and in the adjoining State of Tabasco. To date, no drilling operations have been conducted by the company in Mexico.

All companies mentioned in the seven foregoing paragraphs are operating subsidiaries of the Standard Oil Company of California, and completely controlled by the parent organization.

In Ecuador, the Standard Oil Company of California still retains a concession of

approximately 12,000 acres, located on the Santa Elena Peninsula.

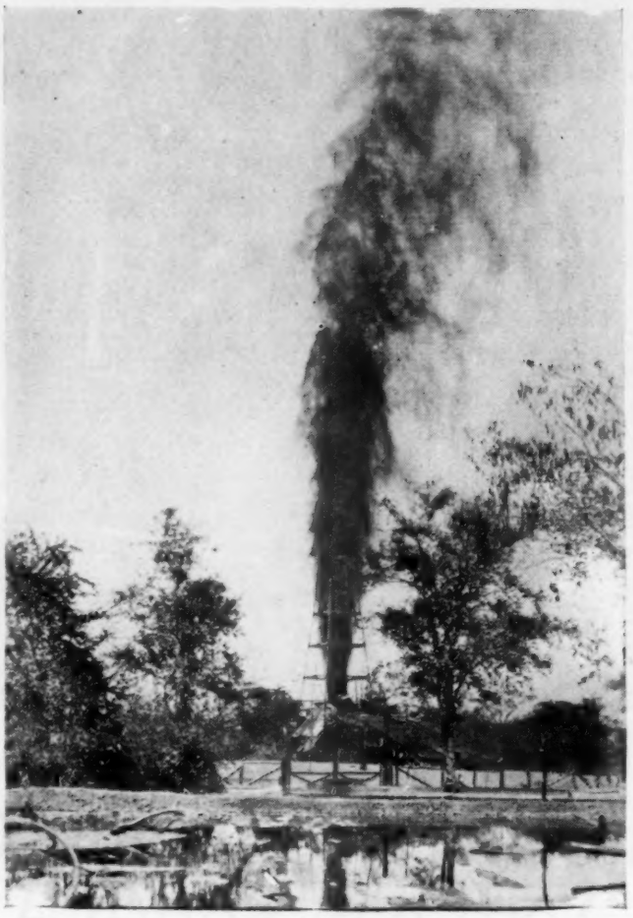
The Union Oil Company, one of the outstanding independents of the country, is becoming each year more of an international factor in the petroleum industry. For several years the Union's marketing activities have been carried on in foreign climes, the latest expansion along these lines being its move into the Australasian markets. Excepting limited attempts at field development carried on in Mexico some years ago, the Union's source of crude production, however, has been wholly domestic, and that largely from wells drilled in California, despite the fact that it has large holdings in Colombia and Venezuela.

Since 1920, the Union Oil Company has owned in fee 425,746 acres in Colombia, but due largely to the geographical difficulties encountered in interpreting the oil indications on such large unsurveyed areas and the time involved in accomplishing this, no actual field developments have yet been started there. Nor is it likely to be for some time, as much yet remains to be done in correlating the data already compiled. The fact, too, that the Union owns this land in fee will enable them to hold it as a reserve against future demands for crude oil.

The company's holdings in Venezuela were acquired in October, 1926, through a contract entered into with the Pentepec Oil Company of Venezuela, covering the testing for development and production of oil in an area of approximately 880,000 acres.

For the purpose of carrying out this contract, Union National Petroleum Company was organized under the laws of the State of Delaware, which company holds the titles to properties covered by the contract with the Pentepec Oil Company, the latter company and the Union Oil Company each owning 50 per cent of the stock of the Union National Petroleum Company, which is in turn controlled by the Union Oil Company of California. It is little more than an operating company for the Union interests.

RODERICK BURNHAM
Manager of lands for the Union Oil Company, who has done much work for his company in Venezuela.



Discovery well of the La Rosa field—made 120,000 barrels per day.

The contract provides that the Union Oil Company will pay to or for account of the Union National Petroleum Company a total sum of $3,500,000 over a period of six years in the testing for development and production of oil.

The properties comprised in the contract are not in large blocks, as acreage goes in Venezuela, but are well scattered over both the eastern and western oil areas of the country, and in practically every instance they adjoin properties being actively developed by the major American oil companies.

The decision of the Union Oil Company to enter Venezuela fields was arrived at only after an extensive study had been made. The investigation lasted more than a year, during which time all the different angles of geology, grades of oil, operating and drilling conditions, transportation, land titles and land laws were carefully studied. The Pentepec properties were chosen as being the best available and have, in the estimation of the company, greater possibilities than any other similar areas in Venezuela obtainable at that time.

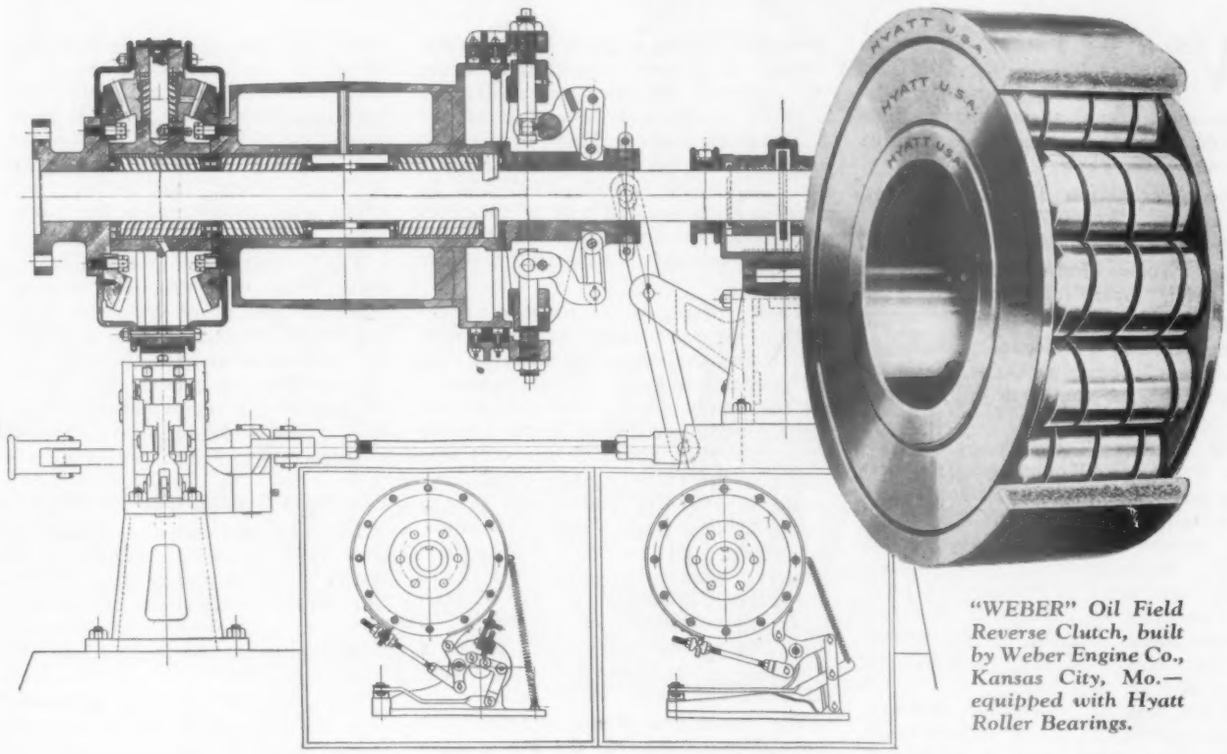
For several months the Union Oil Company has maintained in Venezuela a force of men engaged in the correlation of data, compiled, and in the preliminary work preparatory to the actual commencement of drilling operations. While no official statement has yet been made as to when field development will be started, it is anticipated that this step will be taken early in the summer.

Officials of the California Petroleum Corporation announced recently that the company had entered into an agreement on a royalty basis with the Woodburn Oil Corporation and the Venezuela Holding Corporation for the acquisition of about 1000 acres near the Carribean Petroleum holdings, in which is located the Mende Grande field. It was also announced that the Union Oil Company of California will join in the development of this additional acreage, which is located in a block known as Calcano "A" concession. The two companies have further pooled equal amounts of acreage held by them in the Calcano "A" concession, in which the Pentepec Oil Company of Venezuela has a 50 per cent interest. The two companies will soon commence the drilling of a joint well, which will be located on the Venezuelean Holding corporation's holdings and will be a direct offset to the Caribbean Petroleum property.

The California Petroleum Corporation's geologists have found that "the Mende Grande field, which at its present state of development lies wholly within the Caribbean Petroleum property, is one of the greatest fields in Venezuela. Recent developments to the south have shown that the production increase to the south, and that the depth to the oil sand is decreasing, which would indicate another structural high within the boundaries of the Calcano "A" concession. The most southerly well in the Mende Grande field is reported capable of very large production.

The California Petroleum Corporation has 755,900 acres, which is scattered around Lake Maracaibo and Northeastern Venezuela. Complete drilling equipment for the first well is now being assembled for shipment to Venezuela, and active drilling will be started before May 1. Interesting results may be expected within the present year.

Still going strong in Weber Oil Drilling Engines



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PRODUCT OF GENERAL MOTORS

Organization and Financing of Russian Oil Industry

By M. N. JURIN,
Mining and Metallurgical Engineer

WHEN the Russian Petroleum industry has been nationalized four separate, financially self-sustaining organizations have been created. These organizations are as follows:

The Azerbaidjan Petroleum Trust, or briefly "Azneft," operating the Baku-Apsheron oil fields.

The Grozny Petroleum Trust, or "Grozneft," operating the Grozny oil fields, on Northern Caucasus.

The Emba Petroleum Trust, or "Embaneft," operating the oil fields on river Emba, to the north of Caspian sea.

The Koubano-Tchernomorsk Petroleum Trust, or "Koubtcherneft" operating the fields on river Kouban and in the vicinity of the town of Maikop.

At present the Grozneft and Koubtcherneft have consolidated in a single trust, under name of "Grozneft." Each trust operates on a basis of so called "private owner interest," which means, that the object of the operations is profit, at least nominally.

All the drilling, production, refinery, transportation and other equipment on the territory of the trust, is considered the property of the trust, with the exception of simple tools used by private operators on special lands, leased to them by the trusts.

Central Staff of Trusts is Large

Each trust is headed by the general manager, assisted by the few technical directors. As a rule the general manager is a member of the communistic party, but technical directors could be non-partisans.

The staff of the central administration of the trusts is very large. The "Azerbaidjan Petroleum Industry" gives the following data, in regards to the personnel employed by the "Azneft" in June, 1927: Management, 130; geological bureau, 105; technical department, 105; testing laboratory, 12; department of efficiency, 23; accounting department, 113; management of the auxiliary industry, 6; department of the power, 18; pipe line construction bureau, 35; total, 552. This data, of course, does not include the technical experts and clerical force employed locally, outside of the main office. The total number of workmen employed at the same time was 35,933.

There is a considerable amount of the experimental work being done by the trusts, which always required the great amount of the technical and scientific data, and therefore requires a large personnel of the experts. For instance, there is a separate department in the Azenft Trust, managing the drilling by a turbo-bit method, invention of the Russian engineer. This department employs 41 men, as technical experts and clerks—the overhead should be very large, if we will take in consideration, that the footage drilled by this method amounts to only 1500 feet per month.

To the credit of the Russian organization we must show the speed with which the American methods of the oil porduction have been transplanted on the Russian soil. For instance, of the total footage drilled in the present operating year, about 80 per cent was made by the rotary system of drilling, while in 1924 the percentage of the rotary drilling was only 33. The number of the wells operated by the deep pumping method increased from 795 in October, 1925, to 1955 in March, 1927, according to the Azneft statistics. In the same period the numbers of wells operated by the Ruseian bailing method, decreased from 1366 to 791.

The conditions of the technical experts changed towards the better since the first years of the revolution. They are paid well and are gaining more and more important part in the industry. In the general office of the Azneft Trust there are 155 technical experts, employed on the terms of so called "special tariff"; the average earnings of these experts is 300 roubles per month, while the workmen are receiving from the 65 to 100 roubles per month. However, the average earning of workmen is higher than before the revolution.

There are also many different branches of the trust administration, running the other technical enterprises connected with oil production, as power stations, railroads, marine transport, brick factories and many others.

Until recently the Azneft Trust even had its own seismographic station, but now the Soviet government has taken the station under control and bears the expenses of operation.

An especially important role belongs to the electrical stations, as the electric drives are more extensively used in the Soviet oil industry than anywhere else. In 1925 the Azneft had its oil production electrified 93 per cent, and Grozneft 51 per cent.

Each trust has its own purchasing organization for the purchase of supplies and equipment on the domestic market. But foreign purchases are made only through the foreign department of the commissariat of state trade, named "Gostorg," who has its foreign offices in the principal cities of the world. The New York office of the "Gostorg" is called "Amtorg Trading Corporation;" the former London office was known under the name of Arcos, Ltd.

The trusts themselves have sent many times their technical experts to America and other countries for the purpose of studying the methods of the oil production and for the selection of the suitable equipment, but the purchases of the equipment always have been made through above mentioned offices, representing "Gostorg."

One Sales Organization for All Trusts

The oil trusts do not sell their products themselves—all selling is done through special central sales organization representing all Soviet oil trusts. This central sales organization is called "Neftesyandicat" or in English "Petroleum Syndicate."

The syndicate takes the oil products from the trusts at a certain price fixed by the Soviet central organs and settles for the products by cash or by notes, which could be prepaid by the Soviet State Bank. The "Neftesyndicat" has charge of the selling for the trusts not onl yon domestic market, but on the foreign just as well.

The "Neftesynticat" operates also on the basis of "private owner interest." The amount of profit or loss in accordance with the government regulations should be shown on the annual statements of the syndicate.

The syndicate organization consists of the central management, regional office, wholesale and retail warehouses.

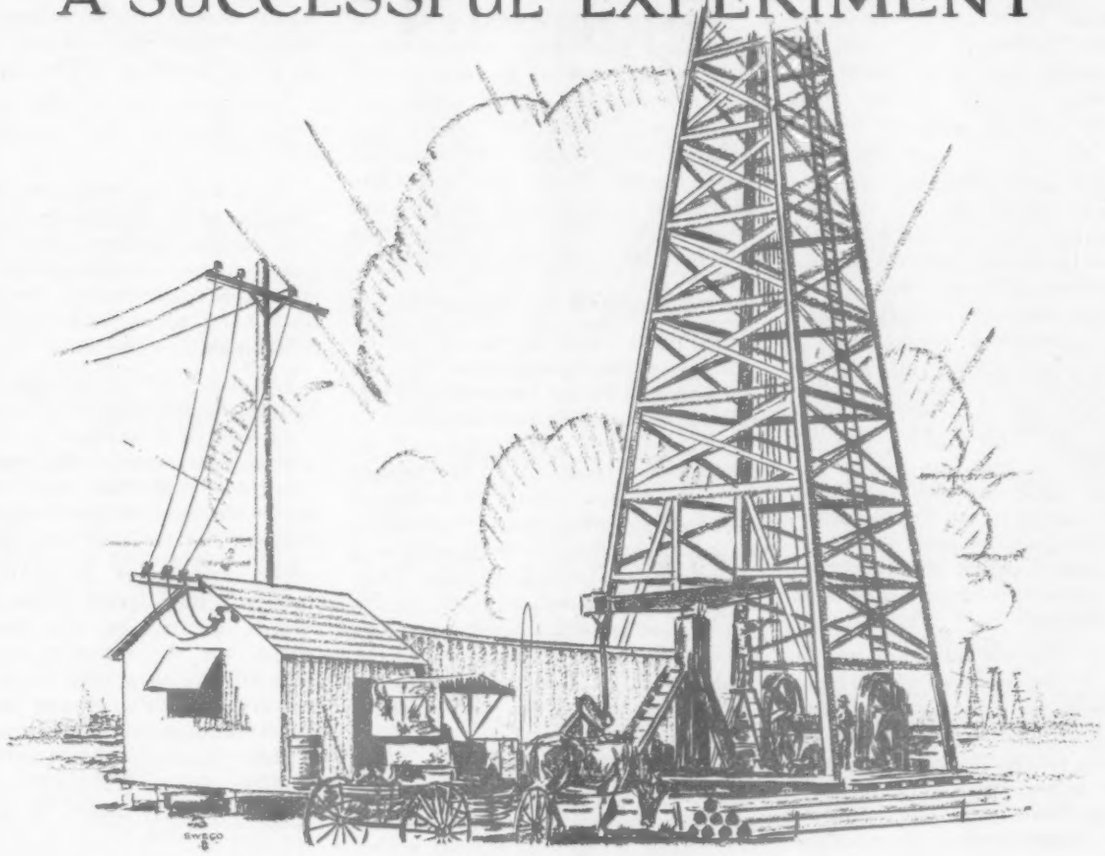
The total force employed by the syndicate amounts to about 15,000 persons.

Besides the syndicate the retail trade of the oil products is being carried by the co-operative shops and by private dealers. The "Neftesyndicat" in dealing with retailers usually gives more favorable terms to the co-operative shops, than to private traders, in accordance with the general policy of the Soviet government.

Trusts Are Not Free in Disposal of Their Earnings

Though the trusts are operating on a basis of the "private owner's interest," it does not mean that the trusts are free in the disposing of their profits. The balance sheet of the trusts has to be approved by the Central Soviet ad-

A SUCCESSFUL EXPERIMENT



FIRST WELL ELECTRIFIED 18 YEARS AGO

Prior to 1911 electric power was untried and unproved in the Gulf Coast fields. But in 1911, on a lease at Spindletop, an electric motor designed for other uses was crudely "hooked up" and put to work. Despite this make-shift equipment, the experiment was successful and proved that electric power was ideal for pumping. From that day the use of electric power has increased steadily. Today three score producing companies in fifteen oil fields of southeast Texas and southwest Louisiana are using electric power, not alone for pumping, but for every other application in the oil fields.

LOW FIRST COST
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ministration, which also fixes the amount of profit or loss, making an assessment on a net profit of the trusts. Thus, in 1925, from the net profit of the Grozneft Trust, amounting to 22,000,000 gold roubles in that year, 12,000,000 roubles have been taken over by the state treasury. Other trusts have been similarly assessed by the government.

The trusts also are not free in using their funds. The estimate of the proposed expenses must be submitted to Council of Labor and Defense and also to the Council of Trade. These institutions quite often materially reduce the trust's estimates of the expenses.

The trusts also must submit the tentative program of oil production, planned for five years ahead, to the central administration.

However, there is cetrain elasticity in the regulations of the Soviet administration and in most cases additional appropriations could be effected in accordance with the changed conditions of the industry.

The trusts do not issue any stocks or bonds, so the only way of financing is through loans from the State Bank and returns from the sales of the oil products by the syndicate. For many reasons it is very difficult to find out whether the Soviet oil trusts are operating with actual profit or loss in the general meaning of these words. The Soviet government seems to be not very particularly concerned about this question. For instance, the railroads tariffs on petroleum products have been raised during the last year by 30 per cent, without corresponding increase in the price of these products, with the exception of fuel oil. According to "Neftesyndicat" estimate, this increase in the tariffs will cut down the earning of the syndicate by 6,000,000 roubles; that means the whole profit of the syndicate will be almost wiped out, which in turn will affect the earning of the trusts.

Prices Are Low

The prices of the oil products under Soviet industrial organization in general are lower than during private ownership of the oil industry. But it would not be correct to explain this fact by the lower cost of production in the socialized oil industry. The cost of production is higher now than before the revolution, but the determination of the oil prices is not based at present on the production cost only.

The prices for the oil products and crude oil are fixed by the central Soviet planning offices, on a basis of general economical condition of the Soviet union. Most important part in fixing the prices belongs to the central fuel committee, which has to co-ordinate the prices of oil and coal according to their relative heating value and also other conditions. Finally the provisionally fixed prices have to be passed by the Council of Labor and Defense.

According to the opinion of Russian economical writers, the present prices of oil products on the domestic market hardly cover the cost of production, leaving very little for depreciation, royalties and necessary expansion of the industry. The export prices are even lower than the domestic ones and prices of the fuel oils and kerosene do not cover the cost of production.

Oil Production in Government Hands

Practically speaking, all of the oil industry in the Soviet union is owned and operated by the government. Private capital is taking very small part in it. Only 1.5 per cent of the total oil production is supplied by the private operators. These private oil producers are working with simple equipment, getting their oil from small pools and wells and using some hired labor. They are obliged to surrender their crudes to the trust at certain fixed price. The tax in the amount of 10 per cent of the total production value is imposed on them for the use of the trust pumping and storage equipment.

A more important role belongs to the private capital in the drilling operation in the Grozny district, where about 25 per cent of the total footage drilled is by the private contractors.

But the private dealers seem to be quite strongly entrenched in retail trade of the kerosene and other oil products used by the agricultural population. Notwithstanding more liberal terms given to co-operative retail shops, the private dealers have been decidedly more successful in selling these products to peasants. About 40 per cent of the total sales of kerosene have been made by private dealers and the rest by co-operative and government shops.

Foreign Capital Not Important

The role of foreign capital is of little importance so far. There are two concessions given to the Japanese firms on the Sakhalin Island. One Italo-Belgian company has a 30-year concession in the Shirak Steppes, Caucasus, and a Norwegian company obtained concession for 40 years on the Busatchi Peninsula, Caspian Sea.

The work on all these concessions is mostly in the exploratory period, somewhat more advanced on Sakhalin Island. It was reported in the Soviet press that in Batoum, on May 28, 1927, the foundation of the kerosene refinery to be operated by Standard Oil Company, was laid. The refinery will be a property of the "Neftesyndicat" but the Standard Oil Company will have a three-year lease on it, with the privilege of renewing it for the same period. The refinery is going to make a better quality kerosene than that refined by the usual Russian methods. The producing capacity of the refinery will be about 1,000,000 barrels a year; the total output of kerosene will be exported.

The Soviet report does not state which Standard Oil Company is involved.

There also are many reports in circulation about foreign capital taking part in the construction of the pipe lines to the exporting ports on the Black Sea. But it seems the oil trusts finally decided to build the pipe lines by their own resources.

The construction of the Grozny-Tuapse line, of the total length 623 kilometers, is already well under way. About 36 per cent of the total piping required already has been delivered, and more than 20 buildings for the pumping stations have been completed.

The construction of the Baku-Batoum line total length about 900 kilometers, is still in the preparatory period, but the following appropriations already have been made for the construction: Preliminary work, 1,500,000 roubles; oil refinery in Batoum, 7,000,000 roubles; kerosene refinery, 5,000,000 roubles. The refineries will make the export grades of the kerosene and gasoline from the crudes delivered from Baku by pipe line, or by railroad in case the pipe line will not be ready when the operation of the refineries could be started.

The Soviet government is very anxious to develop their export of the oil products to a great scale. In this respect the economical conditions in the Soviet union at present seems to be more favorable than one year ago. With oil production increasing at a substantial rate, the domestic consumption of the oil products seems to be reaching its saturation point, as under present conditions there could be no great increase in the automobile traffic in the Soviet union. The increase in kerosene consumption by the population is also slowed down, as per capita consumption has approached the prewar level. The railroads and industry are also not progressing in their demand for fuel oil at the rate of previous years.

Due to excess of production over domestic consumption, more favorable conditions for the foreign export have been created than a year ago.

The low prices of the petroleum products on the world's market do not present a serious obstacle for the Soviet foreign trade, because Soviet union can afford to sell at profitless prices for a considerable length of time, covering the losses from other sources of the national income.

The Principles of Air Lift Pumping

By J. H. POUND

Assistant Professor in Charge of Mechanical Engineering, Rice Institute, Houston, Texas

A LARGE number of interesting magazine articles appeared this past year which discussed various phases of pumping by compressed air. In most of them, the reader was assumed to have an elementary knowledge of the principles of the air lift. Doubtless many of the readers of these articles did not need such instruction, and perhaps space requirements forced this assumption on the author in some cases; but from conversations with several well-informed oil men, the writer believes that a discussion of general principles, freed as far as possible from distracting details of application or economic consideration, would be of value to many readers.

In any air lift system, the force causing the liquid to rise in the discharge pipe is a difference between the pressure to which the liquid is exposed inside the discharge pipe and the pressure to which it is exposed outside the discharge pipe, both pressures being measured at the level where the air enters the liquid. Figure 1 will explain this condition.

Since the casing and the discharge line are both open to the atmosphere, the air pressure is the same at A and at B. At level C, a certain pressure exists due to the fluid column B to C. At D, the point where the air enters the liquid, a certain pressure also exists, due to the column A-D; but since the discharge pipe contains both air and liquid, each foot of its contents weighs less than a foot of the fluid at C. If the vertical distance A-D is not too great, the pressure per square inch due to the contents of the discharge pipe will be less than the pressure per square inch due to the column of solid liquid between C and B. This difference in pressure found at level C-D pushes the liquid up the discharge pipe and out at A.

This difference in pressure which causes flow can be increased by either or both of two methods. The pressure due to the solid liquid column BC can be increased either by putting gas pressure above B or by lowering the air and discharge pipes, thus increasing the total pressure difference between columns BC and AD. Or, working in the opposite direction, the pressure exerted by each foot of air-liquid mixture can be decreased by mixing larger quantities of air with the fluid being lifted, thus decreasing the total weight of the column A-D. Any dissolved gases coming out of solution in the liquid rising in the discharge pipe will also help lighten the lifted column AD. Increasing the air supplied will of course increase the cost of operating the lift.

Submergence

The percentage

$$\frac{\textit{distance B-C, in feet}}{\textit{distance A-D, in feet}}$$

is called the per cent submergence. A sufficiently high per cent of submergence is absolutely essential to the operation of any air lift, whether or not the piping looks like that in Figure 1. If the per cent of submergence is too small, the pressure due to B-C will be equalized before the column of air-liquid mixture reaches the surface, and the well will not flow. Too little per cent submergence might exist if the liquid stood too shallow in the well or if the distance B-A from liquid level to the surface were too great. Evidently, these conditions may prevent the use of the air lift shown in Figure 1 in very deep wells or even in shallow wells in which the liquid does not stand deep.

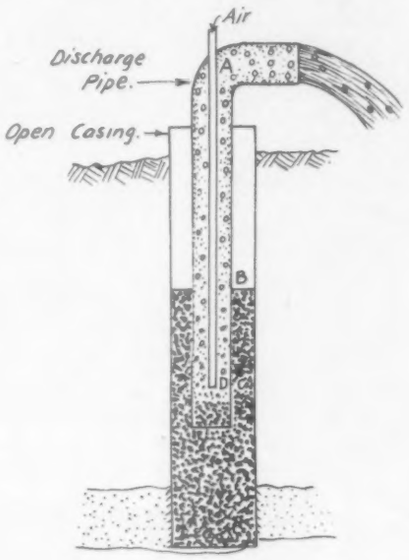


Figure 1

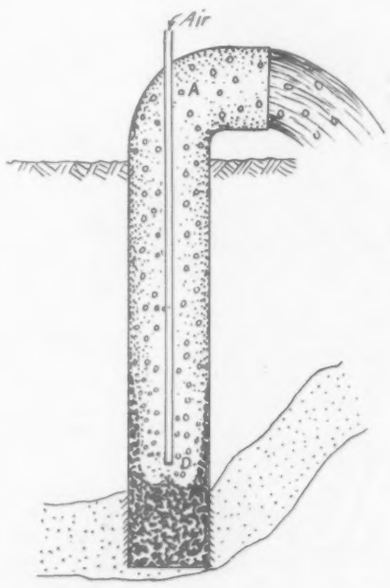


Figure 2.

The per cent submergence also has important effects on the air pressure needed, on the quantity of air needed per barrel pumped, and on the total quantity of fluid lifted. Each of these conditions affect the cost of pumping.

Consider first the effect of submergence on air pressure. The distance B-C in feet is called the submergence. The pressure of the air emerging at D must exceed slightly the resisting fluid pressure due to column C-D. Evidently, the submergence used will determine the air pressure at D. Each foot of water-column will exert a pressure of .434 pounds per square inch. Each foot of oil column will exert a pressure dependent on the gravity of the oil. For example, each foot of 20 degree B oil exerts a pressure of .4044 pounds per square inch, and each foot of 40 degree B oil column exerts a pressure of .3562 pounds per square inch. Thus a submergence of 600 feet of 20 degree B oil would require the use of 600x.404 pounds, or 250 pounds air pressure at D.

The air pressure needed is independent of lift D-A, except as lift determines submergence. The pressure at the compressor must, of course, be somewhat greater than the pressure at D, to allow for pressure loss due to pipe friction.

Ordinarily, the submergence in feet is different before and after pumping begins. After pumping has continued for some time, the liquid level B drops to a point determined by the quantity pumped out per minute, the rock pressure, the resistance of the strata supplying the well, etc. If the starting submergence in feet is great, difficulty may be met in supplying the necessary starting air pressure. For example, with oil of 20 degree B., a starting submergence of 1200 feet means a starting air pressure of 500 pounds. In

practice, starting pressures are often twice the working pressures. To avoid excessive starting air pressures with the piping shown in Figure 1, air is sometimes introduced temporarily at a point above D until the liquid level C has dropped low enough to allow air to enter at the regular inlet D. This compound air lift system will not work satisfactorily if the distance B-A is too great when starting.

With the decrease of the rock or gas pressures causing flow into a well, the starting and pumping levels both drop; so if the air inlet D is kept unmoved, the air pressures needed will decrease as the well declines. But decreasing the submergence will increase the volume of air required. Theoretically, expense can be saved by the operator if he drops his air inlet pipe as the liquid level C falls, thus increasing the lift A-D, the submergence C-D, and the air pressure needed, but still maintaining the air volume supplied at an efficient figure. This moving of the exhaust pipe, though theoretically desirable, is probably done very seldom.

Since the purpose of submergence is to secure a pressure difference between the inside and the outside of the discharge pipe, this result may be secured by closing the upper end of the casing shown in Figure 1 and admitting compressed air or gas above the liquid. If this gas pressure is calculated in terms of equivalent feet of liquid, and if this number is added to the distance C-D, the resulting sum is the effective submergence in feet, and the per cent of submergence is of course the fraction

$$\frac{\textit{effective submergence, in feet of liquid}}{\textit{lift, in feet (or distance A-D, in feet)}}$$

Increasing the effective submergence in this manner will, of course, increase the air pressure needed at D.

Back Pressure

The chief objection to this practice is that the added gas pressure increases the resistance to the flow of liquid into the well. This back pressure on the producing sands would cause the well to collect liquid less rapidly and would cause the liquid to stand at a lower level in the well. With a formation in which the rock or gas pressure is naturally high, this disadvantage may be of small importance. In fact, the resistance to rapid flow may be a real advantage in preventing too rapid loss of gas coming out of solution.

In the case of a well pumped only periodically, with liquid collecting in the hole during idle periods, the ability to produce artificial submergence by gas pressure might allow the air lift to continue in use longer than the normal open-casing three-pipe system would permit. During pumping, however, some of the collected liquid would surely be forced out of the hole back into the sand.

Sealing the casing also allows "rocking" when pumping is to begin. This process consists of admitting compressed air alternately above C with A open to the air, then at A with the casing open to the atmosphere, then above C, and so on. This procedure causes the liquid to surge up and down in the casing and in the delivery pipe, mixing air into the liquid and thus making it easier to lift, and also setting up momentum which aids in starting flow. Both of these effects start pumping with an air "kick-off" pressure not too much above the working air pressure.

The three-pipe open-casing system shown in Figure 1 is common in water wells, but for oil pumping the two-pipe arrangement shown in Figure 2 is much more popular. Air may be admitted at the top of the casing, with the inner tubing acting as the discharge pipe, or air may enter through the tubing, with the casing acting as discharge pipe. The latter arrangement seems the more popular, in spite of several objections to it, such as greater pipe friction and the danger of serious casing corrosion.

With the two-pipe system, liquid submergence such as was shown in Figure 1 by C-D does not appear *in the well;* but a pressure which is equivalent to C-D must exist somewhere and must act the same as the liquid column. In the case of Figure 2, this equivalent submergence pressure is that exerted through the sand on the oil in the well at level D; or in other words, this pressure is equivalent to the height above D to which oil would rise in the open casing if the three-pipe system of Figure 1 were being used. This submergence pressure is furnished by various combinations of rock or gas pressure or perhaps by simple hydraulic head. It may be determined approximately by measuring the minimum air pressure required to cause flow of air into the well. Turning this minimum air pressure into feet of oil in the manner previously described and dividing this figure by the lift A-D in feet will give the per cent of submergence. Naturally, working submergence must be determined while the well is being pumped.

When this equivalent submergence pressure drops too low, the well is in the same condition as one in which the liquid depth is small. Such a well cannot be pumped by the piping shown in Figure 2. Evi-

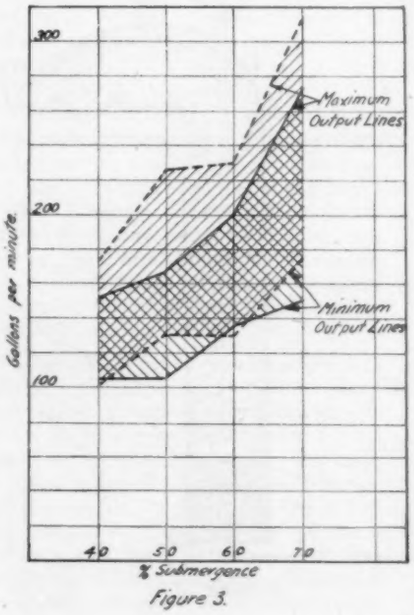


Figure 3.

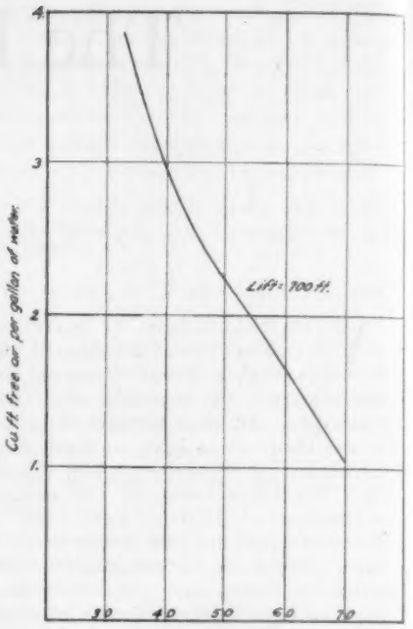


Figure 4.

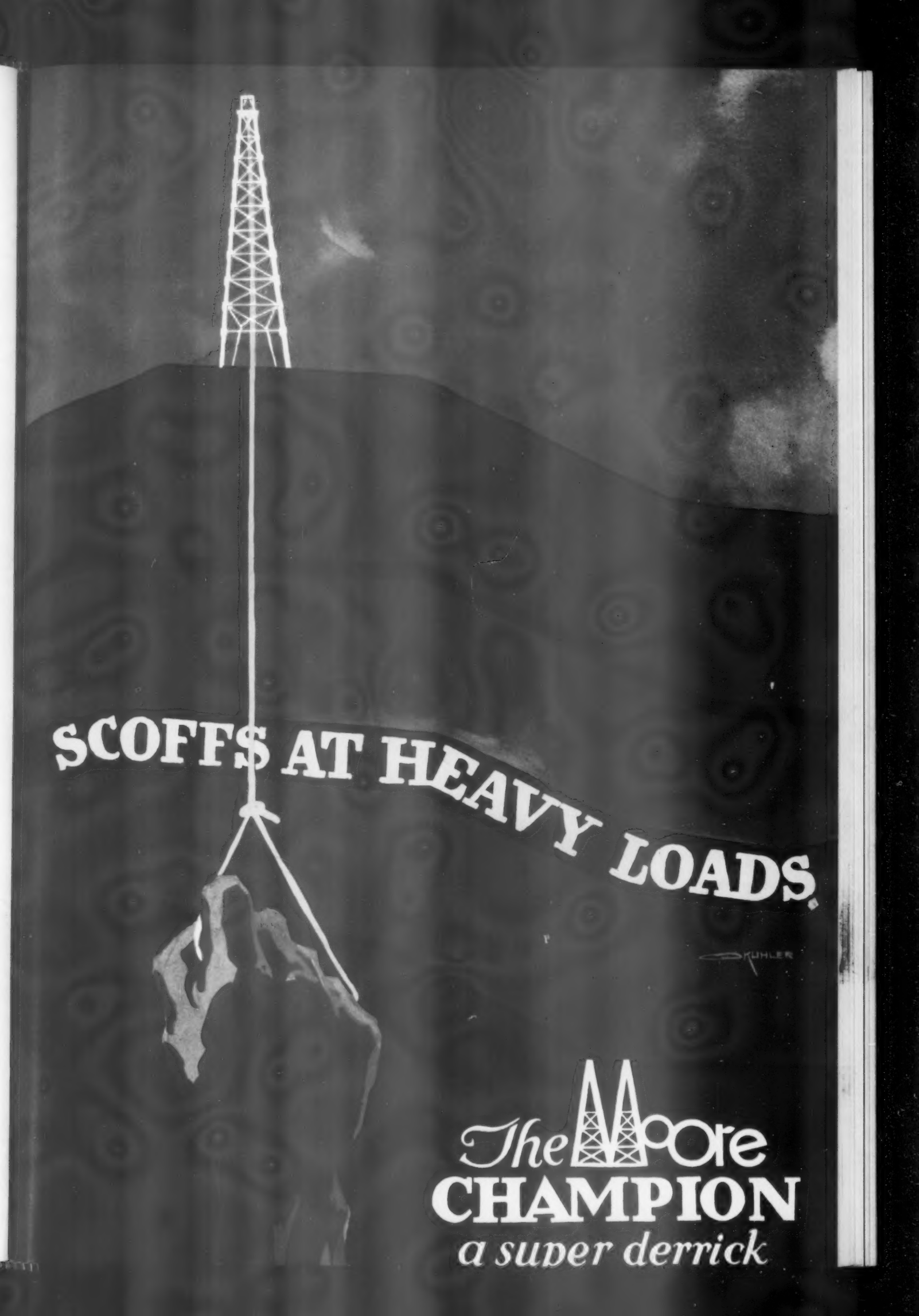
dently, when the two-pipe system of Figure 2 is to be used, the conservation of rock or gas pressure is very desirable, for this pressure causes both the flow into the well and the submergence essential to the air lift. A well which because of poor submergence could not be pumped by two or by three pipes with open casing might, however, be pumped at intervals by three pipes with submergence caused by sealed casing carrying a heavy back pressure. Of course, as previously explained, this same back pressure in the casing which provides the essential submergence might also prevent liquid flowing into the well during pumping periods.

Submergence also affects the maximum capacity of an air lift (in gallons per minute pumped) and the air consumption of the lift (in cubic feet of atmospheric air used per gallon of liquid pumped). Some of the data on these two conditions published in a bulletin of the Ingersoll-Rand Company is reproduced in the attached curves. This data holds true only for water pumped with air and would not be correct for oil pumped with air or for oil containing much dissolved gas or for an oil lift using natural gas, which dissolves in oil much more freely than does air. It is believed, however, that these air-water curves indicate the general sort of rules under which any air or gas lift would act with any liquid commonly pumped from wells.

Tapered Pipe Increases Capacity

Figure 3 demonstrates two facts. First, increasing the per cent of submergence increases the capacity of the lift with both plain and tapered discharge pipe. This was to be expected, because increased submergence increases the velocity in the discharge pipe. Second, using the tapered type of discharge pipe, which

(Continued on page 140)


SCOFFS AT HEAVY LOADS
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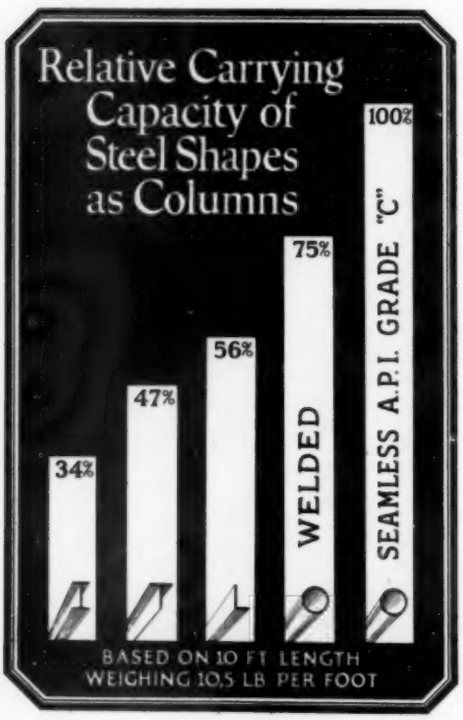
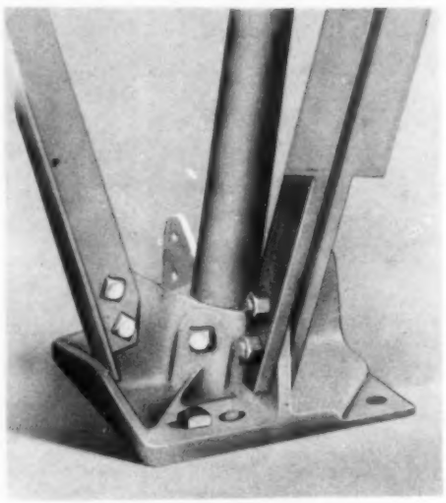
OF all the forces which beset the oil driller and his equipment, perhaps none is more stubborn and powerful than the Giant of Heavy Loads. The derrick especially feels the weight of his mighty hand. Only such strength as is built into the Moore Champion Derrick can withstand such assaults.

The tube — the strongest shape available for compressive loads—is used for leg sections. It is of seamless steel, 40-50 carbon, A. P. I. Grade C, with a minimum yield point of 45.000 pounds per square inch. The chart shows the comparative capacities of steel shapes used as columns. The tube is without question far superior for this purpose.





A heavily ribbed cast steel base plate is used for drilling derricks. This casting is designed to transmit all the uplift, due to horizontal derrick loading, through the two large anchor bolts to the concrete pier. This conforms to A. P. I. specifications.

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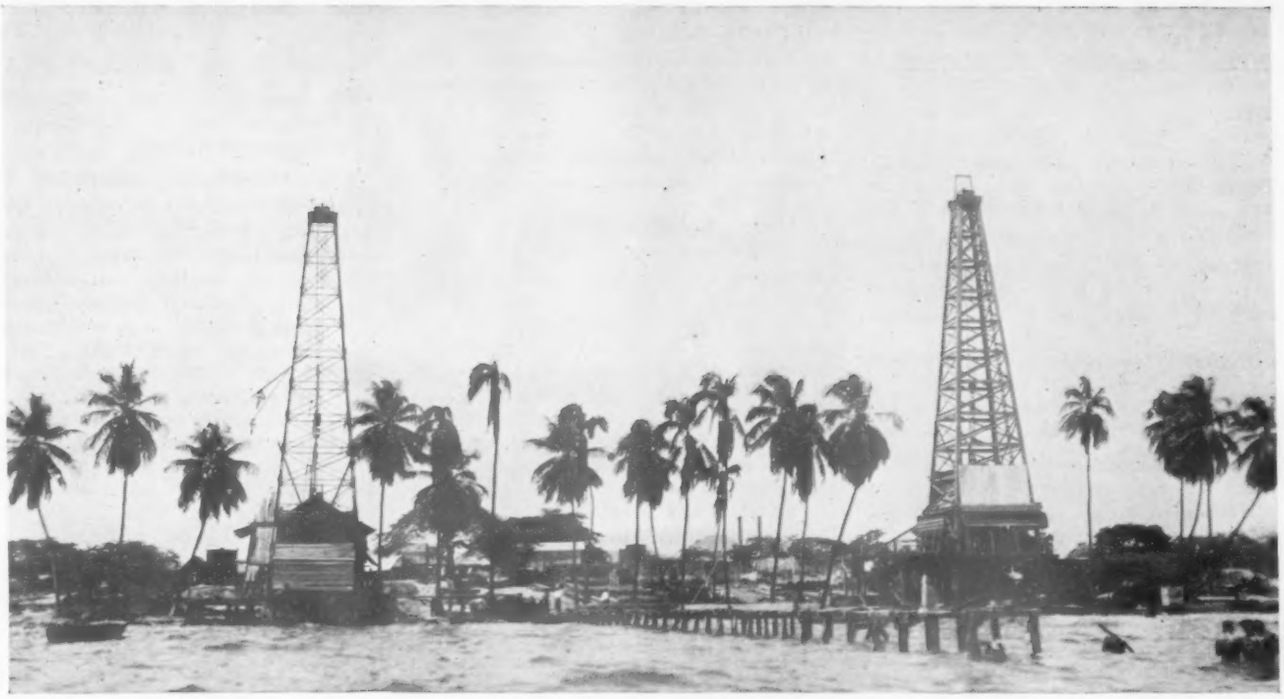


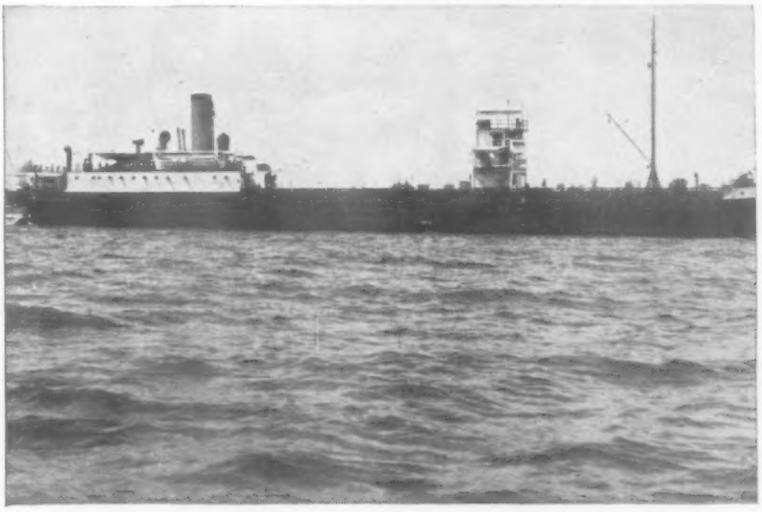
La Rosa 1, on the right, opened Maracaibo Lake production April 26, 1924, making 60,000 barrels, and on the right V. O. C. well which made 50,000 barrels.

Venezuela Biggest Foreign Influence on American Market

By A. R. McTEE and WALLACE DAVIS
Staff Representatives

IN Venezuela, the United States faces a real production competitor in 1928. With our own overproduction situation has come this increasingly important country as a thorn in the side of the local operator. Venezuela looms as the outstanding producer to dampen the ardors of American markets in the immediate future considering indirect sources.

Production in Venezuela for 1926 aggregated roundly 37,000,000 barrels. Last year its increase was approximately 75 per cent, or a rise to 640,400,000 barrels. Thus, by a small margin, it surpassed Mexico in yield, and was exceedceeded by only 8,000,000 barrels by Russia. Production in these two countries, however, cannot be taken as the point for comparison. Imports being the point of disturbance to local markets, this arises for consideration. From Venezuela, United States refineries imported 21,183,000 barrels during 1927, while oil brought in from Russia failed to show up as an item worth consideration. This consumption in the United States of Venezuela oil amounted to approximately one-third of that country's output of crude during the year. And the point of great interest now is that Venezuela is just beginning as a contender for placing crude in this country.



A Maracaibo Lake tanker, 12-foot draft, for handling oil over the bar

1928 Estimates

Estimated production for all fields in Venezuela during 1928 is 100,000,000 barrels, a gain of 37,000,000 barrels over 1927.

Exports from Venezuela for this year will probably run close to 95,000,000 barrels, according to predictions of those acquainted with situation. This will represent a gain over 1927 of 39,073,000 barrels.

These estimates maintain the approximate proportion between production and exports as shown in 1927.

Authorities on the production situation in the country estimate that it is now capable of producing double

the present output, meaning that around 225,000 to 235,000 barrels daily production is pinched in. Pinching of production results mainly from lack of transportation facilities. The present price of crude and the fact that many wells necessarily are flowed under heavy back pressure due to sanding are also factors holding back the country's yield.

Plans for prorating Venezuelan output are now under way and will probably be worked out within the next month. It is understood that officials of companies with headquarters in New York are working on the problem in conjunction with representatives from the fields, including foreign companies.

This step is in line with the present trend toward curbing production in various districts of the United States. Regardless of Venezuela's isolation, the situation in this country projects itself into South America. Therefore it is to be hoped that some definite step will be taken to hold the Venezuelan yield down so that it will not add to the threat of certain fields in this country. Venezuela will profit by such an arrangement more than anyone else.

Slackening Work

Late in January there was a decided slackening of activity in all the older fields bordering on Lake Maracaibo. It was rumored that Lago Petroleum Corporation would cease operations in the Ambrosio field. Lago also began cutting its labor force and a construction program calling for expenditures of $1,500,000 involving a terminal for the accommodation of approximately 1500 men was eliminated. A few bunkhouses are all that will be built at this time. It was indicated that the company would reduce all its activities about 50 per cent.

Concerning the proposed refinery which Lago Petroleum Corporation may build, the Wall Street Journal carried this statement:

"The company is considering the erection of a refinery in or near Lake Maracaibo, Venezuela, where its subsidiary, the Lago Petroleum Corporation, is one of the large oil producers. Site for the plant and its type has not yet been determined. Size of the plant has not been definitely decided, but it is expected to run between 40,000 and 60,000 barrels daily, with facilities to refine gasoline, kerosene and fuel oil. Such type plant it is estimated, may be built at a cost of $6,000,000 to $9,000,000. Construction would take about 15 months and by that time Lago's lake tanker fleet will be sufficiently in-

Map of the Maracaibo Lake region, showing sand bars which hinder transportation

creased to permit it to move more than 75,000 barrels daily."

So far no confirmations of this report have been heard of, and in view of the curtailment program begun in January, it is very uncertain whether Lago will carry out any plans for a refinery this year.

Present Construction

Other immediate construction work scheduled in Venezuela and islands, adjoining it include four 80,000 barrel tanks for the Gulf, at Paraguana. December movements of oil by the Gulf showed more than 200,000 barrels loss due to lack of storage at Paraguana.

The Victaulic Company of America recently sold Lago 120,000 feet of eight-inch pipe, about 28 miles. It is not known definitely where the pipe is to be used, but it will probably be put into a line connecting Lagunillas and La Rosa, touching areas indicated by Tia Juana and San Matias, two good wells. The pipe may also be used to connect Lago wells to storage and pump stations.

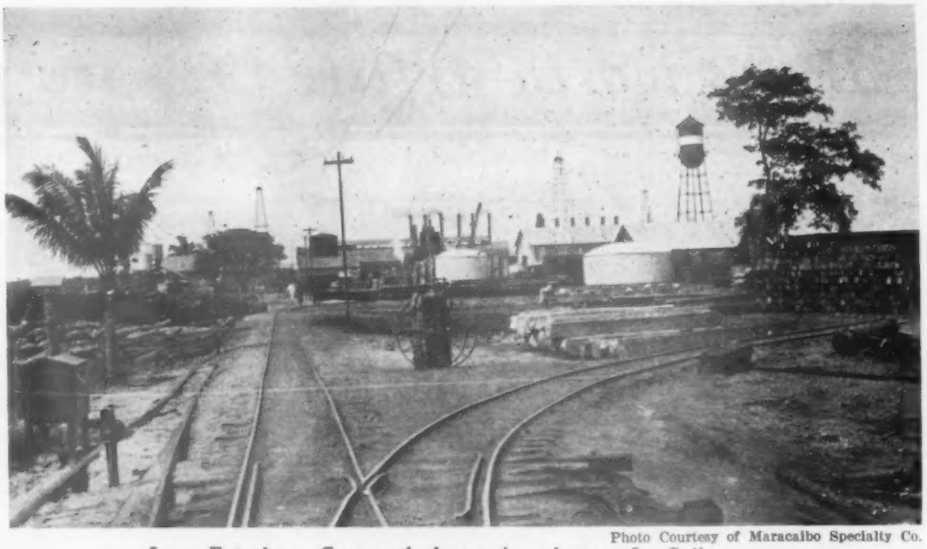


Photo Courtesy of Maracaibo Specialty Co.

Lago Petroleum Corporation's topping plant at La Salina

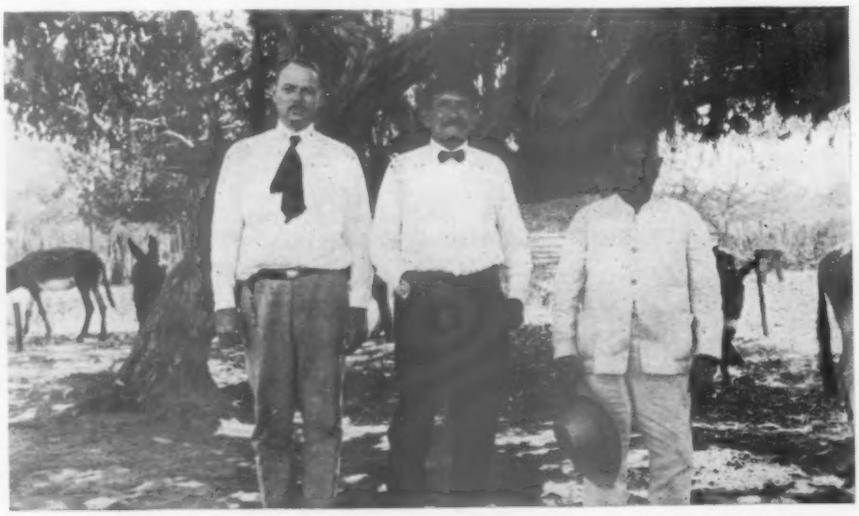
Photo Courtesy of Maracaibo Specialty Co.

V. O. C. Quarters and pier at Lagunillas

The Venezuelan Oil Concessions, Ltd., are scheduled to build two concrete tanks each with a capacity of 1,000,000 barrels immediately, work having probably already started. These tanks are to supplement storage in the La Rosa field.

The chief point of interest in Venezuela as a strong competitor to the American producer is that Venezuela crude is being laid down at Atlantic seaboard for 95 cents per barrel. It ranges in gravity from 19 to 27 degrees in the leading fields, production horizons are found as thick as 1000 feet, varying in depth from 1500 to 3600 feet, shallower than the average level of the outstanding American fields. Few pipe lines are necessary due, to close proximity of production to Maracaibo Lake, transportation by tanker is cheap as is the rough end of labor for production, and a good percentage of the wells come in for as much as 12,000 barrels initial. Thus the local producer is handicapped before the race starts, considering that this kind of competition continues unhindered.

It is well at this point to justify Venezuela's immense increase in production during 1927. The Lagunillas field, discovered late in 1926, is responsible for about 50 per cent of the gain for 1927 over the previous year. This field located on the Maracaibo Lake, about 30 miles south and slightly east of the Ambrosio and La Rosa fields, and about 20 miles the same direction from the Benitez field, was turning out an average of 11,200 barrels daily in November, 1926. In November, 1927, the daily average of the field passed the 108,000 barrel mark. This phenominal development cannot stand responsible for the increase shown exactly by figures inasmuch as concentrated development there during 1927, owing to the prolific nature of the field, caused somewhat of a shut-down in other parts of the country. Nothing more than gathering lines are required to handle Lagunillas production. It, like the output of the La Rosa and Ambrosia fields, as well as Benitez pro-



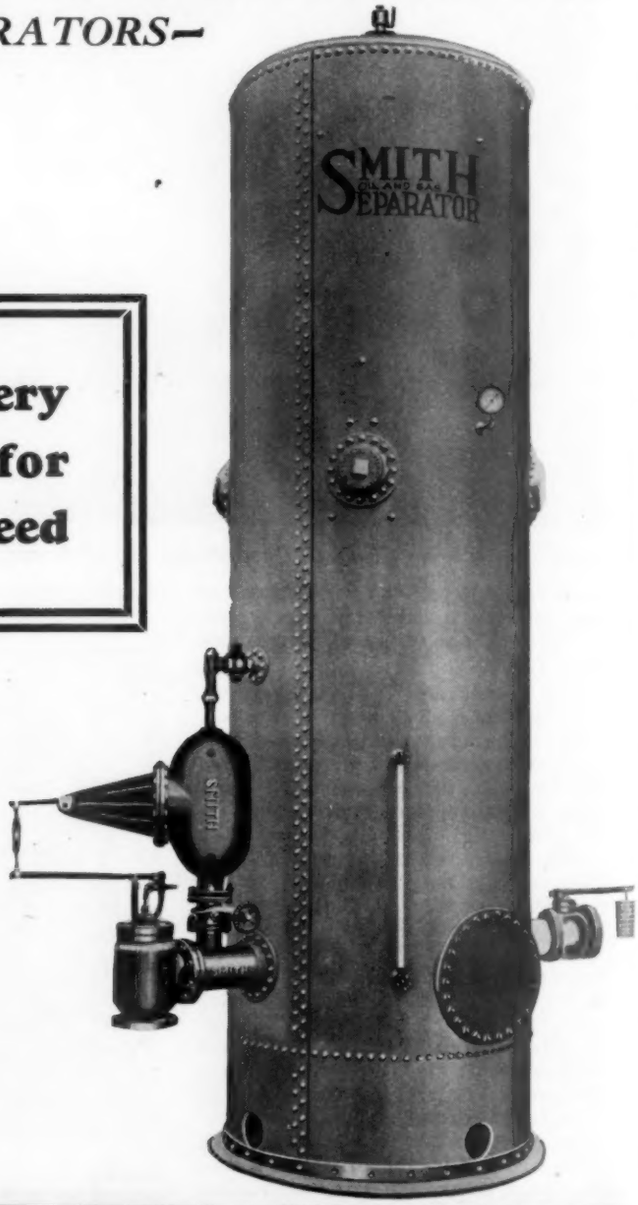
Charles R. Eckes and two Venezuelan natives. Mr. Eckes was chief geologist and general manager for British Equatorial Oil Company when Maracaibo Lake production was opened. He was with The Texas Company at Houston for several years and now is doing consulting work at Tulsa.

"If it's worth drilling for it's worth saving"

PANORAMIC SECTIONAL VIEW OF FAMOUS

Showing 28 Smith SEPARATORS—

There's a Type for Every Service, and a Size for Every Production Need



Say you saw it in The OIL WEEKLY

"If it's worth drilling for it's worth saving"

YATES POOL, PECOS COUNTY, WEST TEXAS

These are only a few of the Smith Separators in this field

Pictures Speak Louder than Words

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VENEZUELAN OIL STATISTICS 1927*

DRILLING SUMMARY

	Wells Drilled Prior to 1927		Wells Drilled During 1927		Total Wells to Jan. 1, 1928		Average Depth of Hole Drilled During 1927	Wells Drilling at End of 1927	Production Prior to 1927	Production During 1927	Cumulative Production to End of 1927	Age of Field Years	Gravity of Oil Degrees Baume
	Producers	Dry Holes	Producers	Dry Holes	Producers	Dry Holes							
Mene Grande	95	3	42	0	137	3	2625	9	28,304,882	9,874,531	38,179,413	11	18
La Rosa	226	8	92	2	318	10	2684	8	34,166,861	19,283,208	53,450,069	5	25
El Mene	104	37	27	17	131	54	1100	4	5,937,109	2,535,023	8,472,132	4	36
La Paz	21	3	5	0	26	3	1500	0	1,079,057	227,371	1,306,428	3	25
Concepcion	45	1	19	0	64	1	1500	0	1,113,839	523,928	1,637,767	3	36
Ambrosio	20	2	22	1	42	3	2370	3	1,729,317	272,428	2,001,745	2	24
Punta Benitez	3	0	26	2	29	2	2530	4	133,684	1,146,057	1,279,741	2	26
Lagunillas	7	0	64	0	71	0	3520	13	1,207,913	28,789,918	29,997,831	2	17.5
LaTarra	10	5	5	3	15	8	1470	4	75,000	100,000	(6) 175,000		30
Rio de Oro	3	0	1	0	4	0	3105	0	25,000	25,000	(6) 50,000		27
Guanoco	6	0	0	0	6	0		0	246,606	614,300	(7) 860,906	2	10
Wildcat operations	(1) 5	(2) 82	(3) 4	(4) 18	(1) 9	(2) 100		16					
Totals	545	141	307	43	852	184		61	74,019,268 (5)	63,391,764 (5)	137,411,032		

(1) The discovery wells of the several fields are credited to the fields themselves. The 5 wildcats here listed as producers are the shut-in wells: MONAV 1 and MONEB 1 in Eastern Venezuela; Zambapalo No. 2 in Northern Perija; El Mamon No. 1 in Falcon; and Libertador No. 2 of the North Venezuelan Petroleum Co. in Eastern Falcon.

(2) Contains many holes abandoned because of drilling difficulties; also many that made gas and/or oil, but in non-commercial quantities. Several of these dry holes would, however, have been rated as producers in certain U. S. localities.

(3) The year's successful wildcats are: San Matias No. 1, Hombre Pintado No. 1, and Los Manueles No. 1.

(4) Includes several holes abandoned because of drilling difficulties.

(5) Accurate to within 1 per cent. Error in production figures comes about through difficulty in accounting for oil consumed in drilling, losses from fires, etc., and in conversion into barrels of the official reports to the government, which are made in terms of metric tons.

(6) All the production from the Tarra and Oro fields is consumed in drilling or held in storage, except for a few hundred barrels sold to the Encontrados Light Co. There are no pipe line or other facilities available for handling oil from either of these fields in commercial quantity.

(7) This is a very heavy crude requiring a special tanker for its transport. It is used as a flux in the manufacture of prepared asphalt products.

*Read by H. J. Wasson before the February, 1928, meeting of the American Institute of Mining and Metallurgical Engineers at New York.

duction, is loaded on flat-bottom barges, drawing 12 feet of water, moved over the two sand bars rising in the passage connecting Lake Maracaibo and the Gulf of Venezuela, and thence to points of loading on ocean-going tank steamers. The distance from Maracaibo, located at the northwestern end of the lake, to New York is 1885 miles, 150 miles nearer New York than Tampico and 75 miles nearer than United States Gulf ports. Two sand bars, rising so near the water surface as to prohibit passage of boats drawing more than 12 feet of water, stand out as the greatest menace faced by transportation of Venezuela oil. The enormous cost of cutting a channel through the passage at the inner and outer bars, plus possibilities of wrecking such a channel with shifting sands, will probably make this handicap to transportation continue to exist for some time.

Near the close of 1927 there were 475 wells producing in Venezuela fields with a well average of 482 barrels. Until the close of 1927 there had been 770 producing wells completed in Venezuela. At that time 65 wells were shut down or working over, 27 wells were drilling and five locations were staked for drilling in the immediate future. During 1927 there were 780 permits issued for drilling in Venezuela.

Production in Venezuela by months is compared in the following table with that of 1926:

	1927 Total Bbls.	1927 Bbls Per Day	1926 Total Bbls.	1926 Bbls Per Day
January	4,857,917	156,707	2,701,257	87,137
February	4,423,519	157,982	2,474,700	88,382
March	4,704,362	151,750	2,821,100	91,000
April	4,275,083	142,502	2,953,436	98,447
May	4,630,275	149,364	2,895,977	93,420
June	4,806,580	160,219	2,951,381	93,380
July	5,480,204	176,780	3,255,033	103,001
August	5,290,807	170,671	3,015,700	97,282
September	5,762,225	192,074	3,113,052	103,767
October	6,023,704	194,313	3,349,872	108,062
November	6,877,673	229,255	3,686,400	122,880
December	6,223,488	200,755	*3,700,000	*119,354
Total	63,134,931	173,530	36,917,908	100,696

*Estimated.

Venezuelan production for 1926 and 1927 by fields:

Field—	Bbls. 1927	Bbls. 1926
El Mene	2,475,084	2,316,690
Mene Grande	9,818,296	8,443,418
Rio Oro and Rio Tara	107,188	49,513
Ambrosio	272,323	1,729,317
La Rosa	19,309,649	21,215,300
Benitez	1,146,278	133,684
Lagunillas	28,825,578	1,207,913
La Paz	228,910	734,280
Concepcion	633,782	832,501
Guanoco	316,853	242,606
East Venezuela	.....	6,088
Totals	63,134,931	36,911,310

Gain during 1927—26,223,621 barrels.

The Mene Grande field, located 15 miles inland from the east shore of Maracaibo Lake and approximately 55 miles southeast of the Lagunillas field, is one of Venezuela's greatest producers. Late in 1927 the daily production was slightly less than 50,000 barrels, and 10 wells were drilling. Development has proven the south end of the field to be more highly productive than at any other point, and the most southerly well in the field was good for 10,000 barrels. Furthermore, it ran higher structurally than other holes in the field, indicating that shallower drilling will be required in new drilling to the south. This field, with widening, is estimated good for 750,000 barrels at here is found from 1500 to 2500 feet generally, with pay sands running nearly 1000 feet thick. An eight- inch line is running production to a loading dock in the edge of the lake. The oil varies from 19 to 27 degrees, according to depth, the heavier crude coming from the shallower sands.

Negotiations are now pending which if successfully completed will mean considerable new work south of the Mene Grande field. Recently the California Petroleum Corporation entered an agreement with the Venezuelan Holding Corporation and Woodburn Oil Corporation, on a royalty basis, to develop 340.27 hectares in the Calcano "A" Concession, District of Sucre.

When details of the arrangement have been worked out it is probable that the three parcels of land involved will be pooled and perhaps assigned to a new corporation which will be managed by the Union National Petroleum Corporation. Operating expenses are to be shared on a 50-50 basis.

A road has been cut to one proposed location and material is being moved in. The exact location is about 100 meters south of the center of the north line of Parcel BIDUV.

Five old fields are at present not producing, namely, the Rio De Oro field, bordering on the Venezuelan-Colombian boundary about 100 miles west of the south end of the lake; Misoa field, just north of the Mene Grande field; Pauji field, about 20 miles southeast of

Mene Grande field; Rio Palmar field, about 85 miles east and slightly south of Maracaibo, and the Urumaco field, in Democracia, about 20 miles south of the southern edge of the Gulf of Venezuela. While production in these fields has been proven to not equal the size of the prolific Maracaibo Lake productive spots, the transportation problem connected with producing the areas is also unfavorable, thus adding to the handicap in developing them.

Most of the desirable acreage in Venezuela has been blocked up, work that has consumed the major part of the past two years with companies doing geological engineering and leasing work. This work now fairly outlined, a well rounded out campaign of exploration is due to be started. While the present situation existing in the United States is having enough bearing on Venezuelan production to show considerable slowing up on the part of wildcatters, 1928 is destined to see the greatest bit of wildcat work yet done in the country. Fifteen wildcat locations of outstanding interest were under way near the close of 1927, and they are shown on the accompanying map.

Atlantic Refining Company is doing considerable shallow testing in Mara. It was recently reported that Atlantic will probably spend a half million dollars in structure work in this area. However comparatively recent events throw some doubt as to this action: The Gulf Company has checkerboarded about half the acreage on the El Tigre structure and will drill two deep tests. The last report on Atlantic's activities gave the P-1 well as fishing for a twisted off drill stem, and N. No. 5 was drilling below 1300 feet.

Atlantic has done much geophysical testing of the El Tigre structure and obtained results indicating that the low point of the structure may be east, perhaps 33,000 feet deep. A gradual lift from P-1 toward the west is indicated.

Atlantic's findings may lead to drilling contracts on the Maxudian acreage west and north of the El Tigre structure.

The British Controlled Oilfields, Ltd. is wildcatting south of the old El Mene field. Six rigs are operating in the El Mene district, one at La Puerta and one at LaCeibe.

Standard Oil Company of Venezuela recently signed a contract to begin delivery of oil from holdings of the Central Area Exploitation Company to the El Mene field, within about 60 days, making the first shipments due about April 1. To carry out this contract it is necessary for the British Controlled Oilfields, Ltd., to build a four-inch line over a distance of 27 kilometers. Work is now in progress on the line.

The Beacon-Sun is testing along the southeast edge of the lake. Latest reports indicate that a deep test, Boscan No. 3 may be abandoned. The well had casing trouble and was shut down at 3689 feet with a collapsed string.

Omnium Oil Development is testing out acreage in Urdaneta; and the Standard of New Jersey, Sinclair and the Gulf Company are active in eastern Venezuela.

Further development of the Urumaco field in the northern part of the state of Democracia will also probably be undertaken this year. Current reports in Venezuela are that the Venezuela Sun Oil Company and the Richmond Petroleum Company of Venezuela will promote a third joint company to operate in Urumaco.

On January 16 the Richmond Petroleum Company completed a wildcat well, El Mamon No. 1, at Urumaco, for about 4000 barrels of fluid. When closed in the pressure increased to 1100 pounds. During the first 12 hours after the well was completed it tested 1650 barrels of oil and sand and 2400 barrels of water.

Both the Richmond Company and the Sun feel that there will be very little difficulty about cutting off the water since they believe it to be coming from the main strata of producing sand.

American and British interests are approximately evenly divided in development of Venezuelan properties. Production by American concerns during November, 1927, totaled 3,600,000 barrels of a total of 6,877,000 barrels.

Possibilities for Venezuela as a big producing country came to light with the opening of Maricaibo Lake production by the British Equatorial Oil Company, Ltd., in April, 1924, almost simultaneous with the acquiring of this concern's holdings there by Lago Oil Company. This was the discovery of the La Rosa field, with completion of La Rosa No. 1 for 60,000 barrels estimated initial yield from 1800 feet, and 650 pounds rock pressure. The flow was closed in to one-half inch, reducing production to 5000 barrels. Following completion, the development of this company and the Venezuela Oil Concessions with offset locations in the lake and along the lake shore started the lake drilling that outlined La Rosa field and later gave rise to other like discoveries along the edge of Lake Maracaibo.

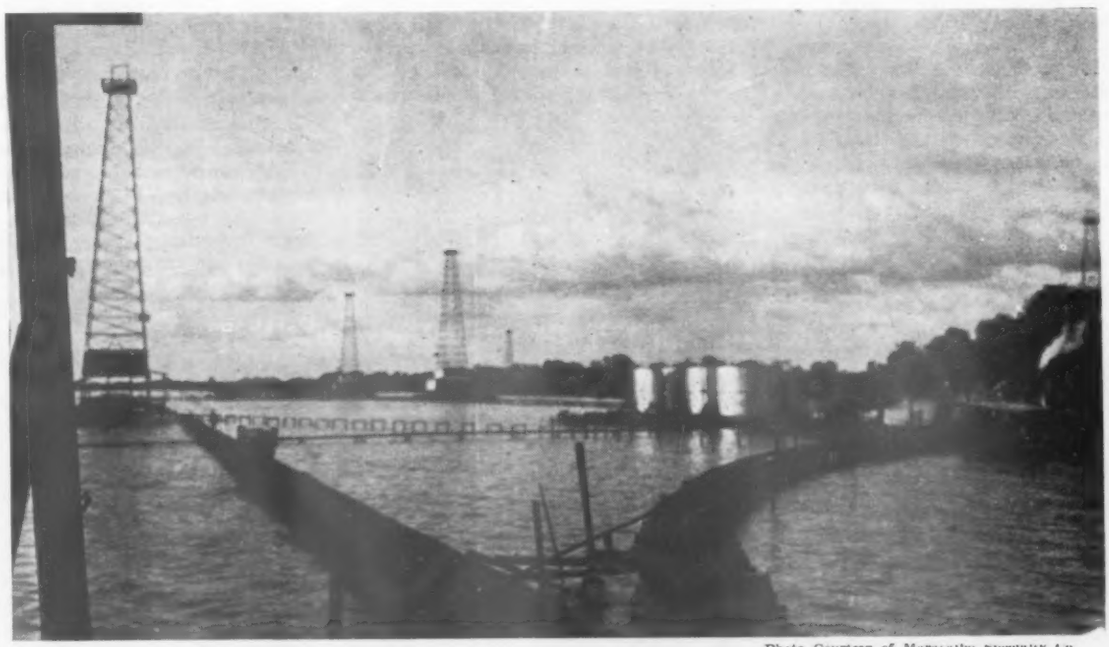

Photo Courtesy of Maracaibo Specialty Co.

Narrow gauge railroad built out in the lake to service wells in the shallow water along the swampy shore line of Laguinillas. Lago Petroleum Corporation.

First office building of the Lago Petroleum Corporation in Maracaibo. Now they have a much larger and more modern building.

Life in the Tropics Has Advantages But Then—

Operating companies who take Americans and Europeans into South American Oil Fields make special provisions for their comfort

By ROY E. LEIGH

LIFE in the tropics has certain advantages when compared with conditions in the United States, but there are also so many disadvantages that it is difficult to strike a balance. One's first impression is quite likely to be that living conditions in tropical oil fields must be very unsatisfactory, but on longer acquaintance, it develops that such is not necessarily the case. The point is well illustrated by the statement that many American oil men who come into the Caribbean fields leave after two or three months, thoroughly disgusted and believing themselves cured of the wanderlust; whereas, others who stick it out through the inevitable period of home-sickness and depression induced by strange surroundings in a foreign land, are able to adapt themselves to new conditions and to learn to enjoy the benefits of tropical life. There are in Trinidad and Venezuela a large number of honest-to-gosh Americans who have served from two to five contracts of two years duration and who look forward to further periods of service away from home. Practically without exception, however, such men plan ultimately to return to the United States.

Labor being cheap, all dirt work is done by hand in Trinidad. The men dig and the men carry the dirt away on their heads.

Stringing six-inch pipe line in Trinidad

In enumerating the advantages of life in foreign oil fields, many citizens of the United States would give first place to the availability of alcoholic beverages; but a cross-section from the lives of North Americans living in Venezuela, Colombia, and Trinidad, probably would reveal no more drinking than is practiced by similar bodies of people at home. A cool bottle of beer or a tall "John Collins" is not to be despised when one returns from a tour of duty; and rum cocktails are very stimulating after sunset. However, there are many total abstainers in the oil colony of Trinidad; so we must look further to gain a full understanding of the lure of life in the tropics.

First place probably should be given to salaries paid by tropical oil companies, which range from 25 to 50 per cent higher than those paid to men in similar positions in the United States. Wages paid to drillers, being common knowledge throughout the industry, will serve as an example. Well-diggers in the Mid-Conti-

nent fields receive from $270 to $350 per month, out of which all living expenses must be met. Rotary drillers in Trinidad receive net saleries of from $350 to $400 per month, after all essential living and medical expenses are paid.

Living Conditions

It is well-nigh the universal policy of oil companies operating in the tropics to treat their staff members very generously. No expense is spared in the effort to alleviate the natural hardships of the country; and, with comfortable living quarters, good food, electricity, sanitation, good roads, and ample transportation, it may be said that conditions compare very favorably with those in the oil fields of the United States. Water supplies, sewerage facilities, electric service, and medical attention are always provided, and the employe is furnished with everything essential to his welfare, as well as many facilities for pleasure and enjoyment.

It is the policy of oil companies operating in Trinidad to provide bungalows and living quarters for all members of their salaried staffs. The average bungalow consists of three servants' rooms on the ground floor, with kitchen, pantry, butler's pantry, living-and-dining room, bath, and two or three bedrooms on the main floor.

Tropical conditions have led to the development of a very distinctive type of construction. Houses are built on pillars from 12 to 14 feet above the ground, to permit of free circulation of air for purposes of ventilation and sanitation, and double roofs are used for the same purpose. The inner or false roof is made of wood or wood-board. There is a ventilating space of about three feet between it and the outer roof, which is usually of corrugated iron so as to provide clean rain water for drinking purposes. As there are no glass windows in tropical bungalows, the outer roof is made to extend about six feet beyond the eaves of the house, to prevent rain from blowing in. The outer walls are boarded up to a height of about four feet above the floor, and the remainder is screened. As rains, borne by the trade winds, come always from the east, it is necessary to provide awnings for only one side of the house. The ideal plan is to place the bungalow so that the trade winds strike it broadside; and the result is a very comfortable arrangement which permits one to sleep under blankets, fanned more or less constantly by cooling sea breezes.

Climate

Were it not for its excess of rainfall, Trinidad might be said to possess an ideal climate. Being situated about 10 degrees north of the equator, there are only slight seasonal changes in temperature. In winter, the thermometer is said to fall below 60 degrees on occasion; and it probably never rises above 100 degrees. At the hottest season of the year it is 10 to 15 degrees cooler in Trinidad than in mid-summer in the United States. The average temperature is given as 80 degrees, only 15 degrees higher, for example, than that of Shreveport, Louisiana, and the annual rainfall averages 60 inches, only 15 inches more than the average for North Louisiana. Millionaires from the northern and eastern sections of the United States spend large sums of money in search of climates no better than that which sojourning oil men enjoy free in Trinidad. Woolens and wraps are essential to perfect comfort when one goes out in the evening.

The Venezuelan climate, however, is more rigorously hot, particularly in the Maracaibo basin.

There are many beautiful scenes in the hills and along the shores of Trinidad, among which might be mentioned moonlight and sunrise over the Caribbean.

Nearly all of the oil camps in Trinidad are built along the seashore, to gain the benefits of sea breezes, bathing, and water transportation. Trinidad Leaseholds has camps at Pointe-a-Pierre and Guayguayare; the Asphalt Company and Trinidad Oil Fields have headquarters at and near Brighten; United British Refineries has its camp and headquarters at Point Fortin, and the British Controlled Oilfields has a delightful seashore camp on Palo Seco Beach, which is bathed by breezes from the broad Atlantic. Sea-bathing, surf-riding, diving, hand-ball, and other aquatic sports are very popular.

Good Roads

Trinidad, having an abundant natural supply of asphalt from its famous Pitch Lake, has an excellent system of good roads, if one can overlook the fact that they are narrow and very crooked. As soon as the newcomer is able to demon-

Typical oil field bungalow in Trinidad

Going to Venezuela

SINCE Venezuela is now the scene of much oil activity, and since large numbers of workers are going there from the United States, it has been suggested by an official of an oil company at Houston that this journal publish a list of the requirements which the Venezuelan government makes of men who seek employment in the oil fields of that country. Those requirements were listed as follows:

1. In the case of American citizens, a passport must be secured from the Passport Division, Department of State, Washington, or from one of its agencies.
2. Applicant must be vaccinated against smallpox and have written vaccination certificate signed by a doctor.
3. Applicant must undergo a physical examination and have certificate from a doctor stating that applicant does not have leprosy, trachoma, epilepsy, mental derangement, or contagious disease.
4. Applicant must make affidavit, signed before two responsible witnesses, that he is not opposed to civil or political order existing in Venezuela.
5. Applicant must have letter from Chief of Police, of sheriff, of city or county in which he resides, stating that he has not been convicted of a felony.
6. Applicant must have a letter of recommendation from employer covering previous six months employment.

"At first glance it may appear that these regulations are very strict," said the oil company official, "but it is a step in the right direction on the part of the Venezuelan government to keep out incompetents, criminals and undesirables."

During 1927 Venezuela produced 64,400,000 barrels of oil, according to figures of the Department of Commerce, making it the third highest ranking oil producing country of the world, with the United States and Russia holding first and second places, respectively. An indication of the increase in activity in Venezuela during 1927 is given by the fact that during 1926 the total output of oil for the country was only about 37,000,000 barrels.

strate his ability to drive a car on the left-hand side of the road and convince police authorities that he possesses a fair knowledge of local traffic regulations, he is provided, in exchange for $5, with a driver's license. Having this permit and a suitable conveyance, he may drive to any part of the island without fear of getting stuck in the mud.

Oil operations are confined to the southern portion of Trinidad; and the headquarters camps are located at distances ranging from 45 to 75 miles south of Port of Spain, the metropolis of the Colony. All necessities of life may be purchased at San Fernando, which is located within five to 45 miles of the several oil camps; but the oil folks seem to prefer to drive to Port of Spain for shopping and entertainment. As this is written, the Christmas race meet of the Trinidad Turf Club is in progress, and folks from all the oil companies may be seen daily on Queens Park Savannah.

Disadvantages

Although one may enumerate the benefits and advantages of tropical life, he cannot for a moment overlook many and ever-present disadvantages. Mosquitoes are to be avoided only so long as one remains behind fine-meshed screens; and malaria is looked upon as inevitable and is accepted as a matter of course. Insects are a constant nuisance, from which there is no permanent escape. Curiously enough, it was an American oil company which contributed very materially toward the amelioration of tropical living conditions by providing an effective weapon for use in the battle against insects. No tropical office or home is considered furnished without one of the redoubtable "Flit" guns, ready at all times for use in repelling armies of insects.

The newcomer in Trinidad or Venezuela is likely to be very much disconcerted by the attack of a little insect known locally as the "jigger." These insects, which are about the size of large fleas, bore into the soles of the feet and palms of the hand; and there lay little sacks full of eggs with the evident intention of utilizing the heat of the human body to facilitate the incubation process. West Indian natives become expert in the extraction of these repugnant parasites, but to the newcomer it is a tedious and difficult task, involving the risk of tetanus or infection.

Snakes are altogether too plentiful, and are given to secreting themselves in the most unwelcome places, such as in automobiles, over doors, and elsewhere about the bungalow. Two boa-constrictors were killed while clearing the site for the Trinidad Oil Fields Operating Company's new camp at Sobo, near Brighton, and one suspects that their playmates may still remain in the adjacent bush. Monkeys and parrots awaken one with their early morning cries, and wild deer are to be found by penetrating into the highwoods.

To the new arrival, the matter of food is of paramount importance. The lowly buzzard is relied upon for scavenging work; and after one glance at primitive slaughtering methods, the tenderfoot adopts forthwith a strict vegetable diet, only to learn that the dreaded dysentary germs lurk in uncooked vegetables, and then it seems to him that there is nothing to be had which can be eaten with relish and safety. However, veterans of tropical operations have solved all these problems, one by one, and the new arrival quickly learns to scald his milk, boil and filter his water, and cleanse his fruits and vegetables with a weak solution of potassium permanganate. Another trick practiced by old-timers in the tropics is to place electric lights in clothes closets and pianos to prevent mildew and moths and to guard against other ill effects of the damp climate.

Clean fresh foods are seldom conveniently available; but a well-balanced diet may always be had upon the expenditure of extra effort, time and money. For example, a service car is driven 40 miles every day to supply Sobo Camp with fresh milk; ice and vegetables are shipped by rail and truck from Port of Spain, a distance of 64 miles; and delicious frozen meat is available from refrigerator ships which call at Trinidad on the northward journey from the Argentine. Peaches, celery, and head lettuce are among the delicacies shipped in cold storage from New York. Chickens and eggs are plentiful at reasonable prices; and, because of the doubtful character of the local supply of beef, these form staple articles of diet. If one were willing to adopt the Creole diet of rice, fish, plantains, bananas, and strange local fruits and vegetables, he might live more cheaply than at home; but he will find that, if he arranges his menu after American standards, his living expenses will be more than double those to which he was accustomed in the United States.

The local custom of maintaining large staffs of servants serves further to increase living costs. The maid-of-all-work is unknown in Trinidad, where, labor being cheap, the tendency is to be lavish in the employment of household help. Although wages are small, the negro's appetite is ever large; and the commissary account groans under the burden. As English custom demands a household staff of at least five members, Trinidad servants have become specialists. Neither cook nor maid would stoop to do laundry or scrub work, so it is necessary to employ menials of another class for such duties. Trinidad negroes are as insistent as their European betters on the observance of their class distinctions.

MALARIA

When the top of your head seems as if it would crack,
And you think there's a weight of a ton on your back;
When you chatter with cold, though your skin's burning hot,
When it seems as though your bones were going to rot;
And you feel like hell, then it's certain you've got—
A rousing good dose of "Malaria."

There's a taste in your moth like an egg at its worst,
And the stock of a brewery couldn't quench your thirst;
With your joints all a-cracking you fall into bed,
While ten thousand demons are pounding your head,
'Till you rave neath the torture and wish you were dead—
You're sure in the Grip of Malaria.

You pile up the blankets and try to get warm,
Yet shiver and shake like a leaf in a storm;
Your head like a furnace, your throat like a drain,
While burning hot needles are piercing your brain,
And your body is cracking all over with pain—
You are having a touch of Malaria.

You swallow quinine 'till you're as blind as a bat,
As deaf as a post and weak as a cat.
At last you break out in a cold clammy sweat,
'Till your bed-clothes cling to your back wringing wet,
Then you know for a moment that you've settled your debt—
With the blood-sucking demon, Malaria.

If by chance you should see a poor wreck passing by,
Yellow of skin and watery of eye;
Bones all a-rattle, with lips turning blue,
Who gobbles and blinks like an ape in the zoo—
Don't shoot the poor devil, it's only he's due—
For another attack of Malaria.

It's said when you die and arrive at the gates
Of heaven above, where Saint Peter awaits,
It counts not at all if you've squandered your time,
What sins you have done or the depth of your crime,
You've got a box seat reserved with the martyrs sublime—
If you've suffered on earth with Malaria.

—Author unknown.

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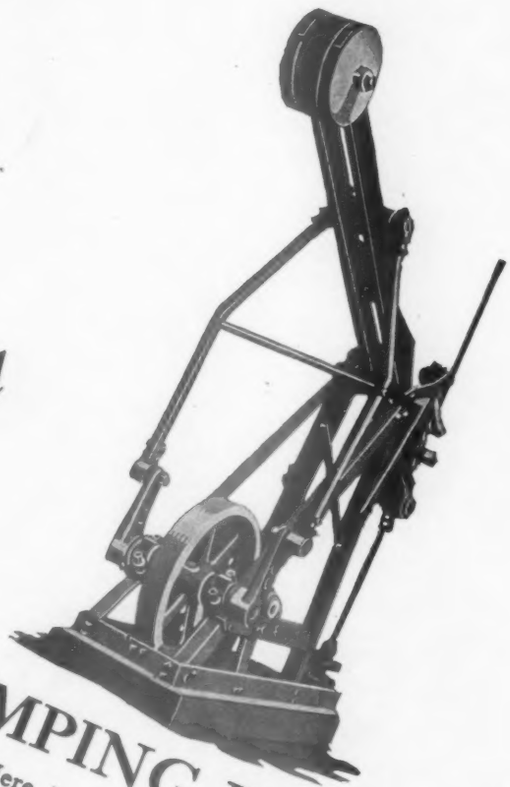

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JENSEN JACKS

—and Pumping Units

Colombian Production Doubled During 1927

Paper presented before the Petroleum Division of the American Institute of Mining and Metallurgical Engineers, New York, 1928

By L. G. HUNTLEY
Pittsburgh, Pennsylvania

THE entire production in Colombia during 1927 was that from the Tropical Oil Company concession. Production was approximately 14,000,000 barrels,of which 12,081,000 barrels were exported from the Mamonial terminal of the Andian National Corporation near Cartagena. The balance represents that refined and used or marketed within Colombia.

As production in 1926 was only 6,443,540 barrels, the increase has been more than 100 per cent. This is partly due to the looping of the pipe line from the concession to the coast, and the resultant increase in capacity to 50,000 barrels per day, and also to increased domestic sales. The refinery at Barranca has been doubled in capacity, and it is understood is now handling 5000 barrels of crude daily. This gives the producing field a potential outlet of 55,000 barrels daily. The Tropical Oil Company completed 82 wells in 1927, with one abandoned for drilling difficulties. The average daily initial production was 1136 barrels per well. The largest well is reported to be No. 173 La Cira, rated as 5000 barrels initial. Most of the wells were drilled on the Infantas and La Cira structures, the latter located en echelon to the northwest of the main Infantas anticline, and separated from it only by a low saddle. Drilling operations on the Llanos fold, also en echelon with Infantas but to the southeast, and at San Luis, bearing about the same relationship to the Umir Hills, uplift, are still more or less in the exploratory stage.

The four structures mentioned cover approximately 15,000 acres, on which there are at present 223 producing wells. Drilling has been better than 92 per cent successful since starting operations on this concession. Allowing 15 acres per well, which is 50 per cent more than good practice in the Mid-Continent fields, there is thus room for 1000 wells, which at the recent rate is a 10-year drilling campaign. This does not take into consideration the known deeper oil zones, which have not been prospected, but which are uniformly petroliferous at their outcrops to the eastward.

It is estimated that with the enlarged pipe line capacity, as well as increased domestic consumption, the production for this country will be about 20,000,000 barrels for the current year of 1928. It is possible that if opened up the field could produce approximately 150,000 barrels per day. The employes' strike at Barranca was settled early in 1927.

No other production was developed elsewhere during the past year. The Standard Oil Company (California) is drilling three wells along the coastal belt. The Gulf has one well standing idle on the Colombia Syndicate properties in the Lebrija district; is drilling one well on the Leonard property, and clearing and roadmaking for two more on this latter property east of Puerto Wilches. The Lobitos Oilfields are drilling one well on the Cortizos property northeast of Infantas. The Scotch-English group operates the Lobitos property in northern Peru, adjacent to the International holdings and their production to the International. They are reported to hold a large block of Tropical Oil Company stock.

The Columbian Congress attempted to pass a new petroleum bill during the latter part of the year. This was written much in the spirit of the petroleum legislation of Mexico during recent years, and was in certain of its provisions probably inspired from that source. The bill failed of passage, and was carried over until the present year; but an emergency bill was passed during the last days of the session, which if it should be embodied later in the laws of Colombia will stop exploration work on part of those companies already in the country, and deter any newcomers. In several specific instances this has already been its effect. The provisions of this Emergency Bill have been summarized by O'Shaughnessy as follows:[1]

Article 1. Establishes the ownership in the nation of Tierras Baldias (unsurveyed public lands), including "any reversions of any nature." This latter is no doubt intended to include the Varco concession, and any lands title to which the government may consider unsatisfactory.

Article 2. Extends the period from four to six months for oil companies to present title documentation "demonstrating ownership" of lands being explored under lease or held by concession.

Article 3. Declares all denouncements or contracts, etc., referring to oil lands depending in the Ministeriat of Industries, to be suspended unless contract be approved by Congress. This provision permits of the ratification of the Yates contract. Pending the passage of a petroleum law, exploration may be carried on "under such terms as the government may fix."*

Article 4. Reserves the exclusive right to the Republic to construct pipe lines, provided, however, that contracts may be made for this purpose with companies or individuals, with the approval of Congress.

The Tropical Oil Company's concession is practically the only property which will not be affected by the new legislation.

The companies drilling in Colombia on leased properties, title to which are anterior to 1873, and hence by law include subsoil rights, are: Gulf Refining Company (Mellon interest), Standard Oil Company (California), Leonard Oil Company, Colombia Syndicate, Magdalena Syndicate, Lobitas Oilfields, Transcontinental Oil Company (Benedum & Trees).

The essential features of this emergency bill are (1) the ratification of the Yates contract; (2) the building of a refinery for government royalty oil; and (3) to extract from the owners of private lands or their lessees (oil companies) an additional 10 to 20 per cent royalty. To the extent that this bill is retroactive it is confiscatory in the same manner as certain Mexican legislation.

In this connection the author believes it best to quote from Mr. O'Shaugnessy[2]

"Cable resume is received of Reglamento No. 150 to Law 84 of 1927 (-so-called Emergency Petroleum Law), signed by the Minister of Industries and the President of the Republic, and became operative January 30, 1928. The effect of this regulation is to lodge in the Minister of Industries absolute control of petroleum development of Colombia through the power fixed in him to grant or withhold permits to drill. All companies or individuals now holding petroleum property, in applying for such permits, must present to the Minister proof of title, satisfactory to him. No legal procedure is prescribed to govern his decisions, nor is any time fixed during which he must act. It is a well known fact that in almost every instance it is impossible for landowners to furnish to the Minister proof of title to which he could not find objections. As this reglamento provides that if proof of title satisfactory to the Minister is not furnished, the lands involved revert to the government unless and until the courts decide otherwise, it is plain that it lies within the Minister's power to declare all petroleum lands as the property of the government. This does not affect the Tropical Oil Company which is operating under a signed contract with the government. Under this reglamento it is practically impossible for any of the

[1] O'Shaughnessy's South American Oil Reports, November and December, 1927.

[2] O'Shaughnessy's South American Oil Reports, Bulletin 132, February 3, 1928.

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PARKERSBURG EQUIPMENT THE STANDARD FOR COMPARISON THE WORLD OVER

Say you saw it in The OIL WEEKLY

oil companies to proceed with development in Colombia."

Colombia is the only South American nation whose territory is comparable (area for area) with that of Mexico, for the variety and richness of its natural resources. Like Mexico, its capital and ruling class is located within the mountainous interior of the country. Naturally enough, such groups often have a provincial point of view, combined with jealousy and fear of outside influences. Of recent years, Colombia has made great strides in internal development, and the future seemed to hold promise of a gathering momentum in that direction. It is to be hoped that more liberal views will in the end govern their attitude toward those whom they are inviting to invest capital within their boundaries. It would be a pity should the potentially richest country bordering on the Caribbean decide by its actions to retain a medieval status. Meanwhile Venezuela, with less natural resources, is going ahead by leaps and bounds, and has already passed Mexico's rate of oil production, which it may soon double.

Production in Colombia since the beginning of exploitation is as follows:

1923—424,000 barrels
1924—500,000 barrels
1925—500,000 barrels
1926—6,000,000 barrels (pipe line finished in June of this year)
1927—14,000,000 (estimate)

In 1926, publicly offered American loans to Colombia were $28,320,000, and in 1927 were $53,200,000. About $120,000,000 of American currency is invested in private enterprises in that country. We buy 80 per cent of all her exports, and in turn sell 50 per cent of all her imports; which business in 1926 amounted to $140,000,000: Comment is almost unecessary.

One of the most interesting phases of oil intrigues in Colombia during the past year was the appearance of a large corps of geologists under the aegis of the Anglo-Persian Oil Company. Shortly thereafter an attempt was made to secure a blanket concession upon all Federal reserve lands; which under the proposed law would include the Barco concession as well as many privately owned lands whose subsoil rights were to be cancelled under retroactive legislation.

Apparently failing in this effort, negotiations of a similar nature were carried on by an H. I. F. Yates of London, whose principals were obviously the same Anglo-Persian Oil Company. The Emergency Petroleum Bill allows for the ratification of a large concession around the Gulf of Darien at the mouth of the Atraro River, to Mr. Yates, but reading between the lines of its provisions, one is led to suspect it is intended to cover all national lands. As the Anglo-Persian Oil Company is partly owned by the British Government, and as Mr. Yates' negotiations apparently dovetailed with certain British mining claims sponsored by that government,* and as this concession is very close to the Panama Canal,* the possibilities of future interesting developments are very good.

A bit of irony is brought into the situation involving the Barco concession, in this way:

"Colombia's representatives before the Swiss Boundary Commission included in their argument for fixing the boundary between the two countries, so as to take in the Barco concession, that General Barco, a Colombian citizen, had discovered and refined oil on what is known as the Barco concession. This was considered as evidence sufficient to include the area in Colombia. The Colombian government in cancelling the Barco concession, denied that work had been done on the area by Barco's assignees, which they claimed before the Swiss Commission had been performed. Consequently they are in this dilemma: If the Colombian courts uphold the government in its cancellation of the Barco concession. the Venezuelan government will likely reopen the Boundary question."

The author is indebted to Michael O'Shaughnessy for help in the preparation of this paper; particularly for recent developments since the former's trip to Colombia early in 1927. He has drawn freely from data contained in "South American Oil Reports," as well as personal communications from Mr. O'Shaughnessy.

*O'Shaughnessy's South American Oil Reports, December, 1927, 4-7.

Lower Formations in Sumatra Hard to Handle

(Continued from page 59)

changed, the rotary and pumps were operated without stopping more than a few minutes, to prevent losing the hole. When the desired depth had been reached, and it was thought that danger from the heaving shale had been sufficiently minimized, the cutter carriers were withdrawn, and the drill pipe, bit head and all, was cemented and set. After the proper time had been allowed for setting, the bit head was milled out and drilling was resumed with the next smaller size bit and cutters It is planned to use lighter mud and to go more slowly in the further drilling in order that formation can be more closely watched.

American Drillers

The men doing the work on the well included Emery Connor, J. B. Baker and L. D. O'Brien, well known Texas Gulf Coast drillers from Houston, who were sent to Sumatra to operate these collapsible bits for the company. The operating company bought a supply of cutters sufficient to carry on quite a campaign, according to the Carter Collapsible Rotary Drill Company. Baroid for mixing mud was furnished by the National Pigments and Chemical Company of St. Louis, Missouri.

One of the accompanying pictures shows the drilling crew on the well. The white men, from left to right, are J. B. Baker, driller; Emery Connor, driller, and one of the company geologists at Perlak, whose name was not supplied. Still another shows the "Crow's Nest" type of sunshade over the crown block on the Ideco 122-foot steel derrick, as well as the thatched shade over the workmen on the derrick floor.

"Obie" O'Brien writes that if a man wants to go "Somewheres East of Suez," Perlak is the place. It is 5000 miles southeast Suez, seven hundred miles south of Rangoon, Burmah, 1800 miles southwest of Manilla, and 4500 miles northwest of Melbourne, Australia. Perlak is 150 miles inland from Pangkalan, which is the end of rail for the northern part of the island. "Obie" also says that the monkeys are so bad in some parts that houses have to be securely closed to keep the animals from carrying off the contents.

The Shell interests have pipe lines connecting the Perlak field with terminals, as well as refineries located on the island, to work the crude from the fields.

Production Increase in Pottawatomie County

Tulsa.—Pearson and St. Louis fields of Pottawatomie County last week produced a daily average of 17,075 barrels from 89 wells. The previous week's daily yield was 12,184 barrels from 86 wells. Thus the increase in strength of the area is recorded, and the value of lime production in this region is raised in the opinion of producers.

The Allen field of Pontotoc, Hughes and Seminole Counties last week produced 10,565 barrels daily from 65 wells in the Hunton lime against 9,352 barrels from 62 wells during the previous week. This field rises weekly in importance, on the heels of the Pottawatomie County productive area.

Gypsy's Sullivan 1, in the northwest of the northeast of the southeast of Section 25-7-3, was making 150 barrels daily late last week from lime at 4298-4317 feet. No. 2, a south offset, was on top of the Hunton lime at 3919 feet and was rigging up standard tools to drill in.

Pierce Petroleum Corporation's Sanders 1, in the northwest of the southwest of Section 20-7-4, the northeast edge of the Pearson field, was swabbing 160 barrels of 37 gravity oil from Hunton lime at 3740-75, the highest well structurally in the field and one of the highest in the county for Hunton lime. Consolidated Pipe Line Company had connected to take this production for Pierce. Magnolia's School Land 2, in the northeast of the southwest of Section 36-7-3, flowed 940 barrels at the close of the week.

In the St. Louis pool area McCullouch's Smith 1, in the northwest of the northeast of the southeast of Section 25-3-4, was flowing 1815 barrels under agitation at the middle of the week. Gypsy's Leclair 2, in the northwest of the southwest of the northeast of Section 23-7-4, made 1801 barrels Thursday of last week from Simpson at 4275-4309 feet. Magnolia's Robbins 2, a mile northwest in the southeast of the southwest of the southeast of Section 15-7-4, flowed 3277 barrels Thursday of last week, producing from Hunton lime at 3725-3800 feet.

Less Known Production Areas Have Important Potentialities

IN his paper called "Review of Petroleum Production in Countries Other than United States, Russia, Venezuela, Colombia and Peru," presented by J. T. Duce, geologist for The Texas Company, at the February meeting of the A. I. M. E., in New York, he predicts important increases from various parts of the world during 1928, and at the same time points out the interdependence of the petroleum producing countries, especially from the standpoint of economics. "No extensive development of production, no matter how remote," he writes, "but has its effect on the world situation. Increase of production in Russia causes Trinidad and Venezuela to send a larger proportion of their production to the United States.

"Overproduction in California affects the price of kerosene in Borneo. Huge production in Iraq will have almost as much influence on the price of gasoline in Tulsa as overproduction in West Texas."

Summarizing outstanding foreign developments during 1927, Mr. Duce puts the Iraq discovery as the most important. "The most interesting news of the year," he says "is that emanating from Iraq, where the Turkish Petroleum Company has discovered oil in large quantities apparently from the same horizon which has been so productive in Persia. One of the wells, that at Baba Gurgur, produced 95,000 barrels of light oil in 24 hours. Undoubtedly a new producing area of great importance has been developed and will have its effect on the world market."

Following up with details of the situation in Iraq it is stated that the Turkish Petroleum Company started drilling 10 wells during the year at the following points in the Vallayets of Bagdad and Mosul: Khashin, Palkhana 1, Injana, Palkhana 2, Tarjil, Baba Grugur, Jambur and Gaiyara. The remaining two of the first 10 test wells are to be at Khormor and Khanupay. The first oil "was struck at Palkhana, where a 100-barrel well was found at 65 feet, and later at 1320 feet a 200 barrel well was secured. Palkhana 2 also found oil at 1260 feet and produced at the rate of 700 barrels a day, but this was mudded off and the well is now drilling deeper. At Baba Gurgur a well to the Ashmari limestone came in on October 14, flowing at the rate of 95,000 barrels a day of 37.4 gravity, A. P. I. oil, with a rock pressure of 270 pounds. The Gaiyara well is said to have passed through three sands, all of which are rated at 5000 barrels a day. The oil here had a gravity of 22 degrees A. P. I. The Injana well is also reported to be showing for big production.

"Plans are being made for a survey of a pipe line from Iraq to the Mediterranean coast.

"These large wells brought in in Iraq during the past year are the introductory phase of another series of flush fields similar in type and content to those of Persia and Mexico. The production is from limestone. The formation which is productive extends in general from Baluchistan northward to the Villayet of Mosul in Iraq.

"It is also to be noted in connection with Iraq that the Anglo-Persion Oil Company has a large field already partly developed in the Transferred Territories at Khanikan. A refinery has been constructed to supply oil to Northern Persia and Iraq in competition with the oil from the Baku district. From the meager field reports available, this field is one of the major dimensions. The construction of a pipe line to the Mediterranean will bring to the Mediterranean countries a new and important supply of oil to compete with that from Russia and Roumania."

Mr. Duce predicts more sane views on the oil industry during 1928. The high tide of restrictive legislation has passed with the year 1927, he believes. "The main functions of the industry are to provide cheap sources of power and lubrication to the world, and are too often lost sight of in political discussions. Excessive taxes, high customs barriers, monopolies, restrictive laws and all regulations tending to obstruct the free development of petroleum lands and the flow of petroleum in trade are reflected in the prices paid by the people at large for petroleum products in the country in which these regulations are adopted."

Below follows extracts from Mr. Duce's report on the various countries:

Trinidad

"Increased activity is expected as soon as the government leases additional tracts of crown lands."

Bolivia

"Announcement was made in the latter part of the year that a concession of 30,000,000 acres of land in the Bolivia Choco had been granted to the Bolivia Concessions, Ltd., which proposes to colonize and develop this property for oil and for agricultural purposes."

The Guianas

"Geologists examined the area along the Barima River in British Guiana for an American company in 1927."

Bulgaria

"Activity in securing concessions has been shown about Kasenlik on the north side of the Marica Valley, where a light oil seepage has been found."

Germany

"Of minor interest is the rise in German production and the development of the new Oberg field. The coming year will see the first large scale Burgius plant in operation there. It will produce 100,000 tons of motor fuel per year. The Oberg production comes from a relatively shallow depth of from 200 to 300 meters and is produced from the sand stone in the Liassic shales. The oil is a gravity of 31 degrees A. P. I. and produces 25 per cent gasoline upon straight run distillation."

"We may expect that Germany in the future will produce more and more oil from around its salt domes as development proceeds."

Poland

"Improvements are noted in producing methods and the utilization of gas in Poland. Exemption from all direct taxes was given by the Ministry of Industry and Commerce to all companies who are engaged in exploratory work in order to encourage the exploration for oil in Poland."

Roumania

"Discoveries in the rich Meotic sand about the Moreni Dome, combined with an intensified drilling program have resulted in a very considerable increase in Roumanian production. A further increase is expected in 1928. It is also probable that deeper sands will be found about the Roumanian salt domes."

Congo

"Oil seepages have been found in the Kilo Moto district of the Belgian Congo. This is on the shore of Albert Nayanza."

Egypt

"A progressive increase in the amount of production of the Anglo-Egyptian company is to be noted, due to the increase in efficiency of the dehydrating plant recently installed at Hurghada. It is also announced that this company has taken a lease on the Farsan Islands in the Red Sea, where it will operate as the Red Sea Petroleum Company, Ltd."

Uganda

"The Anglo-Persian Company is to make a geological survey of Uganda."

Burma

"The largest producing field is Singu, where production has not yet reached its peak. Yenama may also become important in the near future. During the year the Indo-Burma Petroleum Company brought in a big gas well at Peikthalein in the Thayatmyo district. Much progress has been made in increasing the efficiency of producing operations in Burma."

Persia

"No material increases in production may be expected from Persia except upon the completion of more facilities and the discovery of additional fields."

Sakhalin

"The Japanese have had success in developing production in the Russian Sakhalin. Substantial increases may be expected from Sakhalin in the future."

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CRUDE OIL PRICE QUOTATIONS

CRUDE PRICE CHANGES

Dallas.—Effective March 14 at the opening of the market, Magnolia Petroleum Company reduced the price of Mitchell County crude 13 cents, bringing its posting to 80 cents, the flat price which all other companies buying this crude are paying.

CURRENT POSTINGS

EASTERN STATES

	March 28 1928
New York Transit	$2.80
Bradford District	2.80
National Transit	2.65
Southwest	2.65
Eureka	2.60
Buckeye	2.35
Macksburg	2.80
Gaines	2.60
Somerset	1.60
Cabell	1.50
Ragland	.95
Corning, 35-cent grade	1.45
Corning, 25-cent grade	1.55
Keister	1.10

CENTRAL STATES

Illinois	1.50
Indiana	1.32
Lima	1.56
Plymouth	1.23
Princeton	1.50
Waterloo	1.35
Wooster	1.57

WESTERN KENTUCKY

Posted by Stoll Refining Company for crude from Allen, Warren, Franklin, Davies, Barren, All grades 1.50

MID-CONTINENT

Prairie, Sinclair and Gulf

28 to 28.9 gravity	.96
29 to 29.9 gravity	1.01
30 to 30.9 gravity	1.06
31 to 31.9 gravity	1.11
32 to 32.9 gravity	1.16
33 to 33.9 gravity	1.19
34 to 34.9 gravity	1.22
35 to 35.9 gravity	1.25
36 to 36.9 gravity	1.28
37 to 37.9 gravity	1.31
38 to 38.9 gravity	1.34
39 to 39.9 gravity	1.37
40 to 40.9 gravity	1.40
41 to 41.9 gravity	1.43
42 to 42.9 gravity	1.46
43 to 43.9 gravity	1.49
44 to 44.9 gravity	1.52
45 to 45.9 gravity	1.55
46 to 46.9 gravity	1.58
47 to 47.9 gravity	1.61
48 to 48.9 gravity	1.64
49 to 49.9 gravity	1.67

March 28	
50 to 50.9 gravity	1.70
51 to 51.9 gravity	1.73
52 and above	1.76

NORTH AND CENTRAL TEXAS

Ranger, North Texas, Mexia, Powell, Richland, Wortham, Currie, Moran, Nocona and Lytton Springs Crude

(Humble Oil and Refining Company and Gulf Refining Company)*

Below 25 gravity	.76
25 to 25.9 gravity	.81
26 to 26.9 gravity	.86
27 to 27.9 gravity	.91
28 to 28.9 gravity	.96
29 to 29.9 gravity	1.01
30 to 30.9 gravity	1.06
31 to 31.9 gravity	1.11
32 to 32.9 gravity	1.16
33 to 33.9 gravity	1.19
34 to 34.9 gravity	1.22
35 to 35.9 gravity	1.25
36 to 36.9 gravity	1.28
37 to 37.9 gravity	1.31
38 to 38.9 gravity	1.34
39 to 39.9 gravity	1.37
40 to 40.9 gravity	1.40
41 to 41.9 gravity	1.43
42 to 42.9 gravity	1.46
43 to 43.9 gravity	1.49
44 to 44.9 gravity	1.52
45 to 45.9 gravity	1.55
46 to 46.9 gravity	1.58
47 to 47.9 gravity	1.61
48 to 48.9 gravity	1.64
49 to 49.9 gravity	1.67
50 to 50.9 gravity	1.70
51 to 51.9 gravity	1.73
52 and above	1.76

*Humble's postings stop at 44 and above, at $1.52.

NORTH AND CENTRAL TEXAS

(The Texas Company and Magnolia Petroleum Company)*

24 to 24.9 gravity	.76
25 to 25.9 gravity	.81
26 to 26.9 gravity	.86
27 to 27.9 gravity	.91
28 to 28.9 gravity	.96
29 to 29.9 gravity	1.01
30 to 30.9 gravity	1.06
31 to 31.9 gravity	1.11
32 to 32.9 gravity	1.16
33 to 33.9 gravity	1.19
34 to 34.9 gravity	1.22
35 to 35.9 gravity	1.25
36 to 36.9 gravity	1.28
37 to 37.9 gravity	1.31

March 28	
38 to 38.9 gravity	1.34
39 to 39.9 gravity	1.37
40 to 40.9 gravity	1.40
41 to 41.9 gravity	1.43
42 to 42.9 gravity	1.46
43 to 43.9 gravity	1.49
44 to 44.9 gravity	1.52
45 to 45.9 gravity	1.55
46 to 46.9 gravity	1.58
47 to 47.9 gravity	1.61
48 to 48.9 gravity	1.64
49 to 49.9 gravity	1.67
50 to 50.9 gravity	1.70
51 to 51.9 gravity	1.73
42 and above	1.76

*Magnolia Petroleum Company posts the schedule below on oil below 30 gravity and from 30 gravity up to 31.9. Beginning with 32 to 32.9, Magnolia's posting is the same as that of The Texas Company.

Below 30 gravity	.75
30 to 30.9 gravity	.90
31 to 31.9 gravity	1.05

Corsicana heavy is $1.00 posted by Magnolia.

SOUTH TEXAS

Mirando	1.00

SOMERSET

Grayburg

Below 33 gravity	1.05
33 to 33.9 gravity	1.07
34 to 34.9 gravity	1.09
35 to 35.9 gravity	1.11
36 to 36.9 gravity	1.13
37 to 37.9 gravity	1.15
38 and above	1.17

GULF COAST

Grade "A" all companies	1.20
Gulf Coast Light Oil, below 25	1.15
25 to 25.9 gravity	1.17
26 to 26.9 gravity	1.19
27 to 27.9 gravity	1.21
28 to 28.9 gravity	1.23
29 to 29.9 gravity	1.25
30 to 30.9 gravity	1.27
31 to 31.9 gravity	1.29
32 to 32.9 gravity	1.31
33 to 33.9 gravity	1.33
34 to 34.9 gravity	1.35
35 to 35.9 gravity	1.37
36 to 36.9 gravity	1.39
37 to 37.9 gravity	1.41
38 to 38.9 gravity	1.43
39 to 39.9 gravity	1.45
40 and above	1.47

*Humble Oil & Refining Company's postings on Gulf Coast Light stop at 35 to 35.9. Its price on all crudes above 35 to $1.37 per barrel.

Magnolia Petroleum Company's postings stop at 31 to 31.9.

CALIFORNIA CRUDE OIL PRICES AT THE WELL

Following are the current prices offered by Standard Oil Company for crude oil at the well: (Price per barrel of 42 gallons in fields indicated.)

Gravity (degrees) →	Signal Hill	Seal Beach	Huntington Beach	Inglewood	Olinda-Brea Canon	Athens-Rosecrans Dominguez	Torrance	Richfield	Whittier La Harbra	Montebello	Coyotte Hill	Santa Fee Springs	Newhall McKittrick Kern River	Midway Sunset Elk Hills	Buena Vista Hills	Lost Hills	Coalinga	Wheeler
14-14-9	$ .85	$ .85	$ .85	$ .85	$ .85	$ ..	$ .85	$ .85	$ .85	$ .85	$ .85	$ ..	$ .75	$ .75	$ .75	$ .75	$ .75	$ .75
15-15-9	.85	.85	.85	.85	.85	..	.85	.85	.85	.85	.85	..	.75	.75	.75	.75	.75	.75
16-16-9	.85	.85	.85	.85	.85	..	.85	.85	.85	.85	.85	..	.75	.75	.75	.75	.75	.75
17-17-9	.85	.85	.85	.85	.85	..	.85	.85	.85	.85	.85	..	.75	.75	.75	.75	.75	.75
18-18-9	.85	.85	.85	.85	.85	..	.85	.85	.85	.85	.85	..	.75	.75	.75	.75	.75	.75
19-19-9	.85	.85	.85	.85	.85	..	.85	.85	.85	.85	.85	..	.75	.75	.75	.75	.75	.75
20-20-9	.85	.85	.85	.85	.85	..	.85	.85	.85	.85	.85	..	..	.77	.77	.77	.76	.76
21-21-9	.86	.86	.86	.86	.86	..	.86	.86	.85	.85	.86	.85	..	.79	.79	.79	.77	.77
22-22-9	.87	.87	.87	.87	.87	..	.87	.87	.85	.85	.87	.85	..	.81	.81	.81	.78	.78
23-23-9	.88	.88	.88	.88	.88	..	.88	.88	..	.85	.88	.85	..	.83	.83	.83	.79	.79
24-24-9	.89	.89	.89	.89	.89	..	.89	.89	..	.85	.89	.85	..	.85	.85	.85	.80	.80
25-25-9	.90	.90	.90	.90	.90	.90	.90	.90	..	.86	.90	.86	..	.87	.87	.87	.81	.81
26-26-9	.92	.92	.92	.92	.92	.92	.92	.92	..	.87	.91	.87	..	.89	.89	.89	.83	.82
27-27-9	.94	.94	.94	.94	.94	.94	.94	.94	..	.88	.92	.88	..	.91	.91	.91	.85	.83
28-28-9	.96	.96	.96	.96	.96	.96	.96	.96	..	.89	.93	.89	..	.93	.93	.93	.87	..
29-29-9	.98	.98	.98	..	.98	.98	..	1.00	..	.91	.95	.93	..	.99	.99	.99	.91	..
30-30-9	1.00	1.00	1.00	..	1.00	1.00	..	..	..	..	..	.95	..	1.02	1.02	1.02	.93	..
31-31-9	1.03	1.03	1.03	..	..	1.03	..	..	..	..	..	.97	..	1.05	1.05	1.05	.95	..
32-32-9	1.06	1.06	1.06	..	..	1.06	..	..	..	..	..	.99	..	1.08	1.08	1.08	.97	..
33-33-9	..	..	..	..	..	1.09	..	..	..	..	..	1.01	..	..	..	1.11	.99	..
34-34-9	..	..	..	..	..	1.12	..	..	..	..	..	1.03	..	..	..	..	1.01	..
35-35-9	..	..	..	..	..	1.15	..	..	..	..	..	1.06	..	..	..	..	..	..
36-36-9	..	..	..	..	..	1.18	..	..	..	..	..	1.09	..	..	..	..	..	..
37-37-9	..	..	..	..	..	1.21	..	..	..	..	..	1.12	..	..	..	..	..	..
38-38-9	..	..	..	..	..	1.24	..	..	..	..	..	1.15	..	..	..	..	..	..
39-39-9	..	..	..	..	..	1.27	..	..	..	..	..	..	..	..	..	..	..	..
40-40-9	..	..	..	..	..	1.30	..	..	..	..	..	..	..	..	..	..	..	..
41-41-9	..	..	..	..	..	1.33	..	..	..	..	..	..	..	..	..	..	..	..
42-42-9	..	..	..	..	..	1.36	..											

	March 28 1928
MARKHAM	
The Texas Company	
All grades	1.00
LULING	
All grades	1.00
PANHANDLE	
GRAY COUNTY	
(Humble Oil and Refining Company, Magnolia Petroleum Company and Gulf Refining Company)	
Below 27 gravity	.60
27 to 27.9 gravity	.65
28 to 28.9 gravity	.70
29 to 29.9 gravity	.75
30 to 30.9 gravity	.80
31 to 31.9 gravity	.85
32 to 32.9 gravity	.90
33 to 33.9 gravity	.93
34 to 34.9 gravity	.96
35 to 35.9 gravity	.99
36 to 36.9 gravity	1.02
37 to 37.9 gravity	1.05
38 to 38.9 gravity	1.08
39 to 39.9 gravity	1.11
40 to 40.9 gravity	1.14
41 to 41.9 gravity	1.17
42 to 42.9 gravity	1.20
43 to 43.9 gravity	1.23
44 and above	1.26
WHEELER COUNTY	
(Humble Oil and Refining Company and Magnolia Petroleum Company)	
Below 29 gravity	.60
29 to 29.9 gravity	.65
30 to 30.9 gravity	.70
31 to 31.9 gravity	.75
32 to 32.9 gravity	.80
33 to 33.9 gravity	.83
34 to 34.9 gravity	.86
35 to 35.9 gravity	.89
36 to 36.9 gravity	.92
37 to 37.9 gravity	.95
38 to 38.9 gravity	.98
39 to 39.9 gravity	1.01
40 to 40.9 gravity	1.04
41 to 41.9 gravity	1.07
42 to 42.9 gravity	1.10
43 to 43.9 gravity	1.13
44 and above	1.16
CARSON-HUTCHINSON COUNTIES	
(Humble Oil and Refining Company, Magnolia Petroleum Company and Gulf Refining Company)	
Below 31 gravity	.60
31 to 31.9 gravity	.65
32 to 32.9 gravity	.70
33 to 33.9 gravity	.73
34 to 34.9 gravity	.76
35 to 35.9 gravity	.79
36 to 36.9 gravity	.82
37 to 37.9 gravity	.85
38 to 38.9 gravity	.88
39 to 39.9 gravity	.91
40 to 40.9 gravity	.94
41 to 41.9 gravity	.97
42 to 42.9 gravity	1.00
43 to 43.9 gravity	1.03
44 and above	1.06
(Humble Oil & Refining Company)	
Crane, Upton, Crockett and Pecos counties, all grades	.60
WEST TEXAS	
(Humble, Gulf, Magnolia, Kay County Gas Company and Southern Crude Oil Purchasing Company)*	
Crane, Crockett, Pecos, Upton and Winkler, Counties	.60
*Kay County Gas Company does not buy in Winkler and Pecos Counties, and Southern does not buy in Pecos or Crockett.	
(Magnolia Petroleum Company)	
Mitchell County	$ .80
Howard-Glasscock County (shallow)	.80
Howard-Glasscock County (deep)	.60
Col-Tex Refining Company	
Howard and Mitchell Counties	$ .80
WYOMING-MONTANA	
Wyoming	
Byron	1.33
Ferris	1.60
Elk Basin	1.33
Grass Creek	1.33
Rock Creek	1.25
Lost Soldier	.95
Lance Creek	1.33
Mule Creek	1.10
Notches	.65
Big Muddy	1.25
Osage	1.33
Hamilton Dome	.85
Pilot Butte	1.75
Torchlight-Greybull	1.33
Lander	.80
Simpson Ridge	.80
Rex Lake	1.10
South Casper Creek-Poison Spider	1.00
Salt Creek	
Midwest Refining Company	
29 to 29.9 gravity	1.14
30 to 30.9 gravity	1.16
31 to 31.9 gravity	1.18
32 to 32.9 gravity	1.20
33 to 33.9 gravity	1.22
34 to 34.9 gravity	1.24
35 to 35.9 gravity	1.26
36 to 36.9 gravity	1.28
37 and above	1.30
MONTANA	
Sunburst	1.50
Cat Creek	1.33
Lake Basin	2.20
NEW MEXICO	
Artesia	1.00
Hogback	1.38
CANADA	
Oil Springs	2.02
Petrolia	1.95
LOUISIANA-ARKANSAS	
(All Companies)*	
Homer, Haynesville, Caddo, El Dorado, De Soto and Crichton	
Below 28 gravity	.91
28 to 28.9 gravity	.96
29 to 29.9 gravity	1.01
30 to 30.9 gravity	1.06
31 to 31.9 gravity	1.11
32 to 32.9 gravity	1.16
33 to 33.9 gravity	1.19
34 to 34.9 gravity	1.22
35 to 35.9 gravity	1.25
36 to 36.9 gravity	1.28
37 to 37.9 gravity	1.31
38 to 38.9 gravity	1.34
39 to 39.9 gravity	1.37
40 to 40.9 gravity	1.40
41 to 41.9 gravity	1.43
42 to 42.9 gravity	1.46
43 to 43.9 gravity	1.49
44 to 44.9 gravity	1.52
45 to 45.9 gravity	1.55
46 to 46.9 gravity	1.58
47 to 47.9 gravity	1.61
48 to 48.9 gravity	1.64
49 to 49.9 gravity	1.67
50 to 50.9 gravity	1.70
51 to 51.9 gravity	1.73
52 and above	1.76
*Shreveport-Eldorado's postings stop at above 40 gravity.	
STEPHENS	
(All Companies)	
Below 28	.85
28 to 28.9 gravity	.87
29 to 29.9 gravity	.89
30 to 30.9 gravity	.91
31 to 31.9 gravity	.93
32 and above	.95
SMACKOVER	
(All Companies)	
Below 24 gravity	.75
24 and above	.90
Bellevue	1.25
Jennings	1.15
Vinton	1.30
Edgerly	1.30
Starks Dome	1.30
Urania	.75
Cotton Valley	.75
Calion	.75

IMPORTS OF PETROLEUM AT PRINCIPAL UNITED STATES PORTS

American Petroleum Institute Figures (Barrels of 42 gallons)

	Week Ended March 17	Week En'd March 10
AT ATLANTIC COAST PORTS—		
Baltimore	109,000	234,000
Boston	.....	*83,000
New York	1,002,000	1,042,000
Philadelphia	243,000	364,000
Others	221,000	68,000
Total	1,575,000	1,791,000
Daily average	225,000	255,857
AT GULF COAST PORTS—		
Galveston District	65,000	.....
New Orleans and Baton Rouge	191,000	111,000
Port Arthur and Sabine District	....	.....
Port Arthur and Sabine District	.....	.....
Tampa	.....	.....
Total	256,000	111,000
Daily average	36,571	15,857
AT ALL UNITED STATES PORTS—		
Total	1,831,000	1,902,000
Daily average	261,571	271,714
Daily average four weeks ended	220,072	223,000

RECEIPTS OF CALIFORNIA OIL AT ATLANTIC AND GULF COAST PORTS

American Petroleum Institute Figures (Barrels of 42 gallons)

	Week Ended March 17	Week En'd March 10
AT ATLANTIC COAST PORTS—		
Baltimore	80,000	90,000
Boston	.....	.....
New York	.....	258,000
Philadelphia	78,000	.....
Others	.....	97,000
Total	158,000	445,000
Daily average	22,572	63,571
AT GULF COAST PORTS	.....	.....
Daily average	.....	.....
TOTAL ATLANTIC AND GULF COAST PORTS	158,000	445,000
Daily average	22,572	63,571
Daily average four weeks ended	46,214	59,964
DISTRIBUTION OF TOTAL CALIFORNIA RECEIPTS IS AS FOLLOWS:		
Crude	.....	86,000
Gasoline	158,000	263,000
Kerosene	.....	96,000
Total	158,000	445,000

*Revised.

for bigger, better business

OPALINE

REG. U.S. PAT. OFF

..the extra service Motor Oil

YOU give a motorist extra service when you sell him the correct grade of Opaline—because Opaline does an *extra* service in his engine! It is more than a motor oil of the right *quality* for lubrication. It is a motor oil that a motorist buys in the right *grade* for piston seal to prevent the power from blowing by. There are several grades of Opaline to fit the different degrees of wear in a car's engine both before and after pistons are refitted or new rings installed. When a motorist tells an Authorized Opaline Dealer his mileage, the Sinclair Recommendation Index tells which grade is needed to seal the pistons and prevent the power from blowing by!

That's the *extra* service in Opaline Motor Oil. That's the reason it builds bigger, better business. The right grade of motor oil is just as important as the right quality. And the Authorized Opaline Dealer sells BOTH! May we tell you the details?

SINCLAIR REFINING COMPANY, INC.

Also Makers of Sinclair Gasoline and H-C Gasoline

45 NASSAU STREET, NEW YORK

Boston Chicago Houston Kansas City Atlanta

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BOYKIN

CREYHOUND PRODUCTS

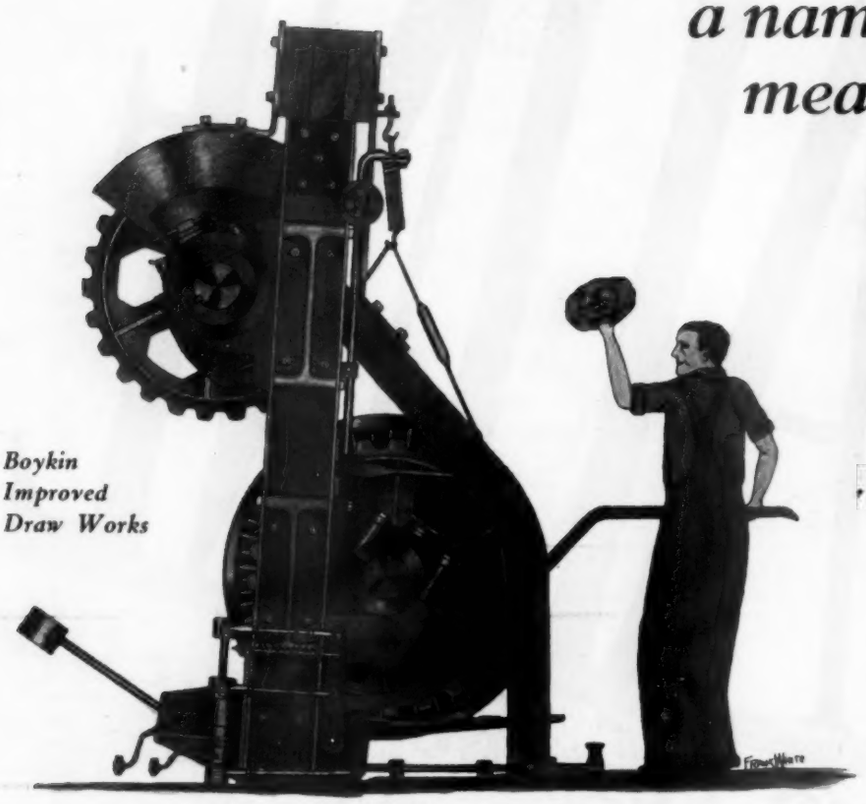
a name that means—

SPEED

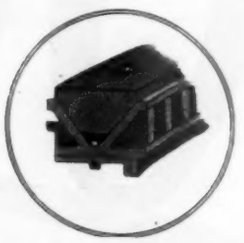
ENDURANCE

ECONOMY

SAFETY



Boykin Improved Draw Works



"V" Shaped Flanges and Brake Blocks

Boykin announces a super Draw Works—Air cooled Drums—which make is possible to keep working without having to wait for "cooling off."

Safety of Operation—length of Service and Speed permissable—makes this Draw Works best suited for use in foreign operations as well as for domestic use.

The following pages carry additional information pointing the way to better Rotary Drilling.

This Draw Works is equipped with V-Shaped Flanges and Brake Blocks. This method is absolutely the latest principle in Braking. It is to Braking—what Tex-Rope is to Transmission.

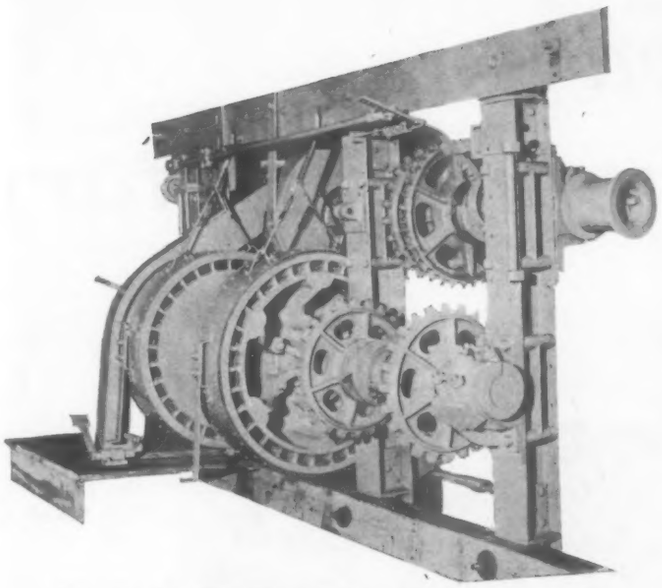
In addition to the general specifications of "Draw Works", Boykin has built into this equipment that quality of material and workmanship that begins to prove itself when the ordinary piece of equipment has passed its day of service.

Boykin Machinery & Supply Co., Inc.

Beaumont, Texas **Houston, Texas**

BOYKIN

CREYHOUND PRODUCTS



The Boykin "Big Texan" Draw Works

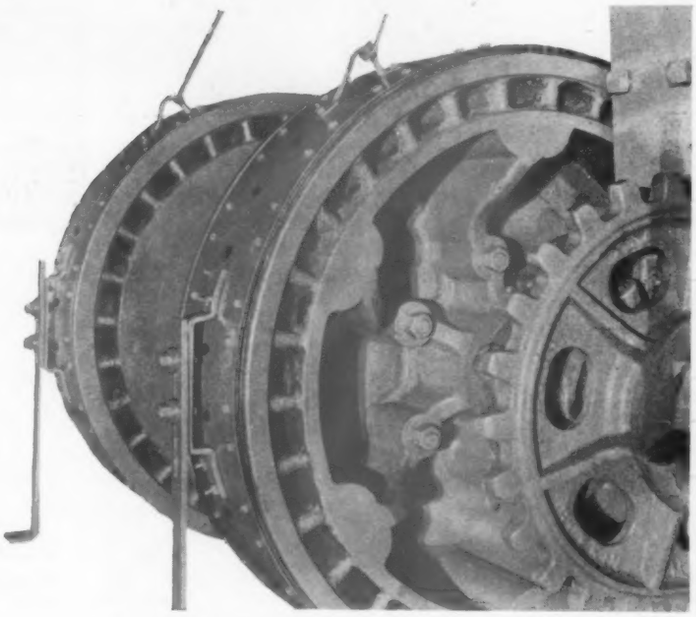
"Big Texan"

With the Oil Industry's demand for better and more durable equipment becoming more urgent, Boykin developed the "Big Texan" Draw Works. This giant Draw Works is air cooled and has the extra item of Boykin's Material and Workmanship.

Designed and built by oil field equipment manufacturers of long experience, the "Big Texan" is rated for 10,000 foot drilling. The extra large drum has proven in actual deep drilling that the wire lines which previously had burned out on smaller drums will do 9,000 feet of deep drilling without giving way.

With the "Big Texan", you get a giant Draw Works—a cooling system that insures safety and saves time—A braking surface that has no parallel—Strength—Speed—and Dependability.

The Regular Greyhound Draw Works has the same features as the "Big Texan" except that it is smaller. It, too, gives the characteristic Greyhound performance and has Safety—plus Speed—plus Dependability—all of which insure continuous operation.



Air Cooling System on the Boykin Draw Works

Boykin Machinery & Supply Co., Inc.

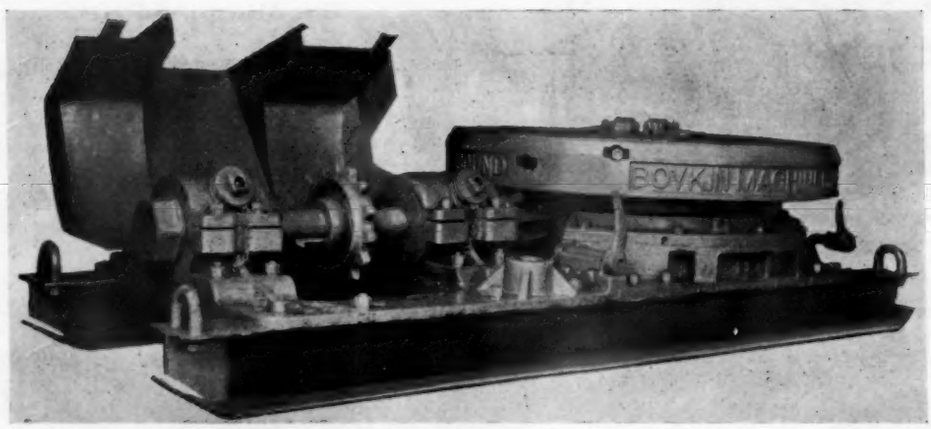
Beaumont, Texas **Houston, Texas**

BOYKIN

GREYHOUND PRODUCTS

New Improved "Greyhound" Rotary

The 23-inch "Superior"



The 19-inch "25" Model

In keeping with the Greyhound Line of Products—The Rotary shown above has incorporated in it the finest Material—Workmanship and Design. It is built to stand the punishment of deep drilling in hard formations.

The element of time is money in drilling. The Boykin Greyhound Rotary permits the driller to gain time because it is built for Speed—Smooth Operation—and Long Life. It has the flat top and continuous base so popular in the field.

Hyatt Roller Bearings give a high operating efficiency to the Greyhound Rotary.

Boykin Greyhound Products are made in a modern plant with complete facilities for accurate work.

Boykin Offers GREYHOUND—

Crown Blocks	Counter Shafts
Travelling Blocks	Tubing Blocks
Rotaries	Make-up Posts
Draw Works	Pitmans

Additional Information on Request

Boykin Machinery & Supply Co., Inc.

Beaumont, Texas **Houston, Texas**

Six New Wells Boost Production At Long Beach

Ventura field has six wells producing from below 7000 feet; Miley Oil Company gets first real production in Rincon field

By BRAD MILLS
Staff Representative

LOS ANGELES.—Six completions with an average initial production of 2000 barrels gave the Long Beach field a distinct boost during the week and broke the long drought which has caused a wide variance in estimates of the possible peak production. Two of the new wells were killed, one for recementing and another for deepening. New locations have increased so much faster than completions during the past two months that the total number of wells drilling or about to be drilled number 225. The campaign is such a stupendous affair that a trip through the field shows townlot operations in an advanced form.

The Shell Company's Martin 4 is drilling at the remarkable depth of 6940 feet and is still in a very good oil sand. The well already has more than 4200 feet of unbroken oil sand and shale, the top of the Alamitos zone having been reached at a comparatively shallow depth. The deep test is located near the center of the field, which accounts in part for the remarkable showing.

The best completion of the week was the Cailfornia Petroleum Corporation's Schilling 4, which was a 3600-barrel producer at 6468 feet. The oil tests nearly 31 gravity and cuts less than one-tenth of one per cent. The Plymouth Petroleum Company was not satisfied with the completion of its No. 2 at 6325 feet and is drilling deeper in the hope of increasing production. The well produced about 500 barrels during the initial test. With four completions, the Shell Company easily took honors during the week. Alamitos 24 and 27 were 1600 and 2160 barrel wells at 6475 and 6443 feet, respectively. The former was originally drilled to 6515 feet and plugged back, while the latter was taken off production and recemented. An edge water condition caused Alamitos 24 to be plugged back. Alamitos 27 showed a cut of 40 per cent, a figure entirely too high for commercial production. The company's Binkley 3 was completed at 6402 feet, with an initial production of 2100 barrels. The oil was 31.6 gravity and cut 1.6 per cent. Patton-Wilson 5 was a 2100-barrel producer from 6470 feet, having been plugged back from 6553 feet. The crude was 31.2 gravity and cut 1.5 per cent.

With seven wells drilling for the deep sand in the Alamitos Heights section of the Seal Beach field, it is possible that a fair production may be obtained. It is almost certain, however, that the deep sand will not become a major faction in the Los Angeles basin. George F. Getty's Alamitos, a recent completion at 6540 feet, has been put on the compressor with little success. The initial production was about 150 barrels, while the output with the new installation is about the same. The Marland and Richfield completion around 6500 feet is producing at a fairly consistent rate. Marland is drilling below 6600 feet in Selover 12 and should complete within a few weeks. In the main part of the field, Marland has completed Bixby 11 with an initial production of 1400 barrels from 4783 feet.

Considerable excitement in the vicinity of Greenfield, near Bakersfield, was caused when the J. E. O'Donnell wildcat, section 21-30-28, encountered a pocket of gas and staged a small blowout. The gas was found from 1890 to 1920 feet. No test was made and drilling was continued.

The Pacific Eastern Production Company has located two more wells in the new Fruitvale field, following the success of a long production test of the discovery well. Both wells were located on the northeast quarter section 21-29-27. The 2½-inch tubing has been pulled from the discovery well and there-inch substituted. It was found that the smaller tubing was partly filled with paraffine.

The Ventura field, peer of all deep producing areas, is challenging the whole world to equal its record. With six wells producing below 7000 feet and still deeper production possible, this remarkable field stands in a class by itself. The Associated's Lloyd 102, a recent completion at 7210 feet, is still flowing at about its original rate of 3500 barrels, with a gas production of more than 4,000,000 cubic feet. The well is the deepest producer in the field and followed a series of completions just below 7000 feet. The Associated's Lloyd 51, completed last week at 7100 feet, is still flowing about 1700 barrels of 30 gravity oil and 2,000,000 cubic feet of gas. Each of these wells is producing from approximately 2000 feet of oil sand, with the bottom of the formation apparently as productive as the top. The Petroleum Securities Company's Willett 3 has been completed at 7025 feet, but the initial test has not been completed. The well started flowing at the rate of 1200 barrels and promises to equal the average producers completed on adjoining leases. It is the company's first completion below 7000 feet. The Shell Company is making a production test of Edison 16, which was drilled to 7157 feet and takes its place as one of the deepest producers in the field. All new completions will be tested for 30 days before being produced at 80 per cent of their capacity. The completion of a bunch of large wells soon after the inauguration of a curtailment program does not mean that the good derived from the shut-in will be offset by new production. The average drilling time in the field is more than four months, meaning that much additional production will be developed during the spring.

The recent discovery of a deep sand on section 8-32-23 by the Republic Petroleum Company has done much to stimulate activity in the Midway-Sunset area, where field operations have been at a low ebb for almost a year. The fact that the Republic well continues to produce at its initial rate of 1100 barrels adds much weight to the belief that the new formation is a true sand, rather than a small pocket. The well was completed at only 2750 feet, making it an easy matter either to deepen the old wells or to drill from the surface. Republic Petroleum Company is preparing to deepen additional wells on the section, while the Chanslor-Canfield Midway Oil Company will deepen at least one well to test the new formation.

Completion of a 1700-barrel well in the Rincon field by the Miley Oil Company has again turned the spotlight on this much-doubted area. Just as the operators were about to agree that the upper sand was a failure, the Miley interests felt around and finally found a good strip of sand near the 3100-foot level. The oil is 31 gravity and cuts only one-tenth of one per cent, indicating that a nice production is possible if the layer of oil sand is uniform over a considerable area. It is possible that success in the field depends upon set-

(Continued on page 101)

A NEW *and* GREATER

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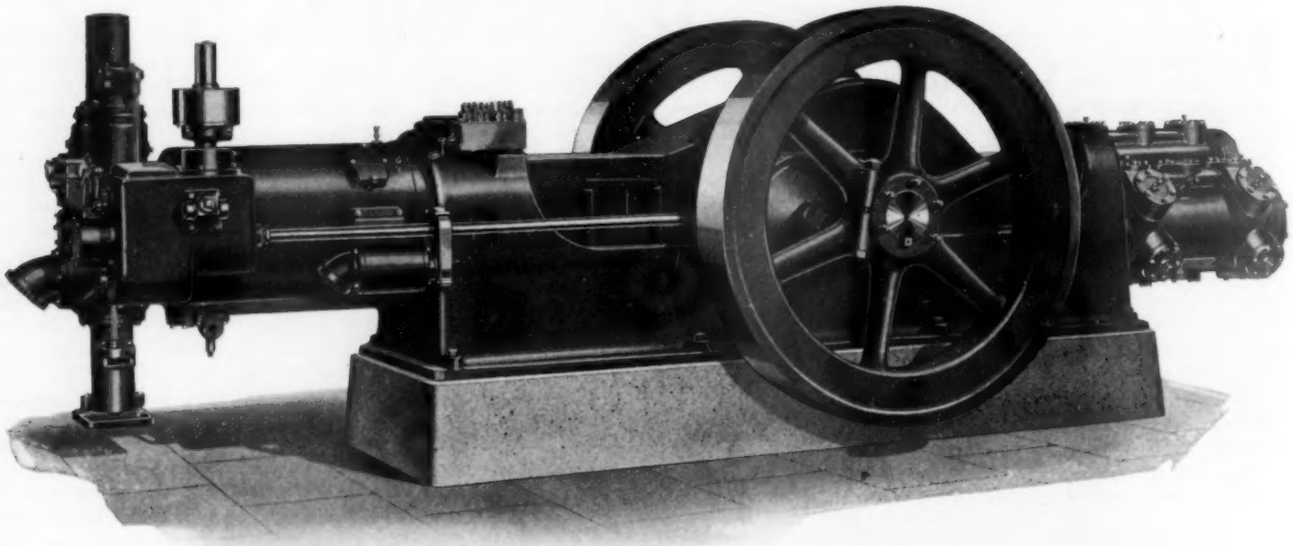

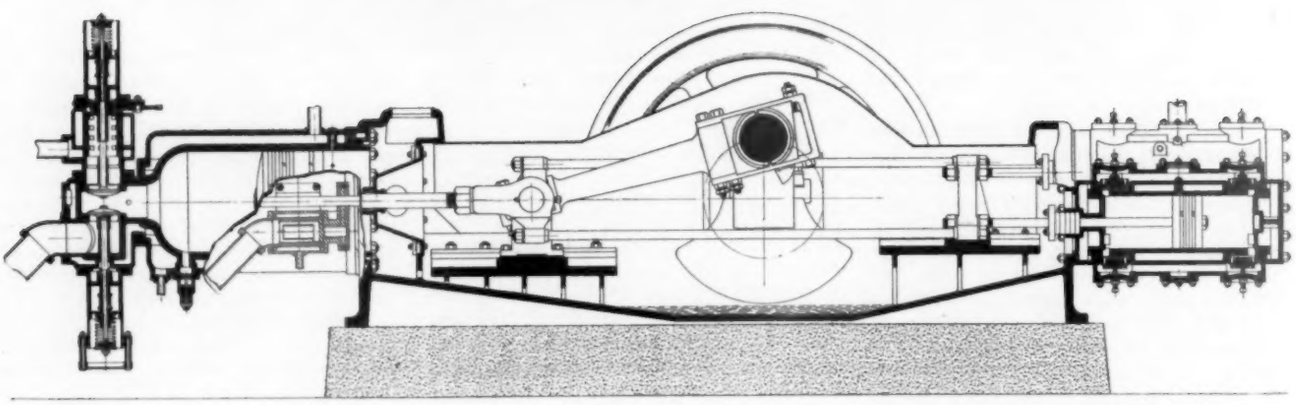

The most dependable, efficient and economical 100 H. P. unit ever developed—one that will fulfill the most exacting requirements, and render a longer service. The sectional view emphasizes the simplicity and accessibility of this engine.

(Patented June 29, 1916)

PATTIN POWER
Driven Compressor

HERE is the new Pattin Super Power Engine that will carry the full rated horse power load, and practically eliminates all valve trouble. A unit far in advance of any heretofore offered.

This engine represents 15 years experience in building direct driven compressors, designed especially for building up Rock Pressure on old wells, and for any compressor work where heavy continuous service is required.

It is a four cycle, single acting, center crank type, with two fly wheels, fully enclosed, and fitted with our new Auxiliary Exhaust Sleeve Valve—the exclusive feature which makes it the most efficient engine on the market.

Features of the Super Power

AUXILIARY EXHAUST VALVE

The main feature of our new engine is the Auxiliary Exhaust Port Sleeve valve, (Patent applied for). It eliminates valve trouble. As practically all fire is taken out of the cylinder through the center of this sleeve valve, and does not come in contact with the finished surface of the main valves, the greatest wear is eliminated. After exhaust takes place, this valve closes, and prevents loss of incoming charge or fouling by exhaust gasses. No fire goes through the main valves.

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Each cylinder is independent of the other. The pistons or valves can be removed without changing a single pipe connection or affecting the alignment in any way.

This 100 H. P. direct driven compressor is self contained—one foundation, and has no outboard bearing or supports of any kind to get out of line and cause trouble.

It has high speed governor, gear driven, enclosed; renewable Phosphor Bronze Main Bearings, with wedge adjustment, completely enclosed combination splash and force feed lubrication, and automatic air starter.

A special feature has been built into this unit which permits it to operate on very lean air gas.

It is destined to be the sensation of 1928—write today for literature on this Super Power Unit.

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Meister Valves are made of vanadium steel and weigh less than two ounces each. On account of their lightness they are absolutely noiseless and will never require grinding.

Seats are made separate from cylinder and are readily accessible for cleaning or repairing, without removing a single connection. As they are free from troublesome springs, they can be used in any position. Here are some features of Meister Valves.

1—Improved mechanical and volumetric efficiency over the old style poppet valve.

2—Elimination of lubrication of any kind for the valve itself.

3—Silent operation at the highest piston speeds.

4—Valves never require regrinding.

5—Elimination of troublesome springs.

6—Simplification of air end, owing to the absence of all complicated valve operating mechanism.

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Trinity Produces 3000-Barrel Well at Cotton Valley

Most substantial oil producer yet completed in this gas area; expected that increased drilling for oil will result

SHREVEPORT, La.—The Cotton Valley field of Webster Parish officially entered the Trinity production columns Monday when the Ohio Oil Company's Bodcaw 38, in section 15-21-10, in the approximate center of both the shallow and deep producing horizon of the field, was brought in with an initial flow of 44 gravity oil variously estimated from 3000 to 5000 barrels a day, from 4683 feet. This is not the first deep well drilled in this field that has developed Trinity production, but is the first to be completed with an initial production of any consequence; and it naturally follows that it is considered of vast importance among local operators.

Three unsuccessful attempts were made to bring in the Ohio's Bodcaw Lumber Company well at shallower depths, each of the three tests resulting in a small production of gas. The last test before the one made Monday showed approximately 1,500,000 cubic feet of gas, from 4626 feet. The sand from which it yielded the oil production was encountered at 4669 feet and penetrated 12 feet. The hole was then drilled an additional two feet in gumbo, to 4683 feet. It was bailed Monday to 200 feet below the top of the hole, when it blew in with a flow of oil that is conservatively estimated to be at the rate of 3000 barrels daily, and a large volume of gas that has an open flow pressure of 600 pounds, by actual gauge. The well was allowed to thoroughly clean itself and was then closed in, as no storage facilities had been provided. Work of constructing tanks is now being rushed all possible; and the well will probably be opened again during the week. Shortly after being closed in, the pressure of the well rose to 1750 pounds.

There is no doubt but that the completion of this well will result in renewed activity upon the part of those companies now interested in the field; in fact, drilling plans are now being discussed by the major operators, who seem to take the Ohio's well as an established fact, and are discussing the proposition of whether or not the field will continue to be developed by drilling one deep well to each 40 acres, as is the custom now being followed as regards gas producers. In addition to new wells that will perhaps be started immediately, this well is almost completely surrounded by wells that are now producing gas from the 4400 and 4600 foot sands, and these wells, or the majority of them, at least, will possibly be deepened in an effort to secure oil production.

The Ohio Oil Company's Bodcaw Lumber Company 38 well is the third well to be drilled in the Cotton Valley field to show oil in the Trinity sand. Two previous wells have developed favorable showings that were taken as indications that Trinity production would eventually be realized in the field, and one well, the Woodley Petroleum Company's Cox B-1, located in section 23-21-10, was recently completed as a small oil producer at 4737 feet. This well was short-lived, however, and was finally plugged back to the 4500-foot sand following the early encroachment of salt water which drowned out the small amount of oil produced. Arrangements are now being made to shoot this well in the 4600-foot sand, to which depth it has now been drilled, in an effort to restore it to production. The first well to show oil in the Trinity formation in this section was that drilled by Dick Norton and associates in section 27-21-10, almost two miles due south of the Ohio's well. A series of mishaps that occurred during the finishing of this well resulted in its being abandoned without having been accurately tested. The Woodley Petroleum Company's Cox B-1 well is only about one mile southeast of the Ohio's Bodcaw 38; and this well looks very favorable for Trinity production.

There are now several wells drilling in the Cotton Valley field that are scheduled to test within the next few days, and these will probably be carefully cored in an effort to pick up the same sand as that found in the Ohio's well. The Magnolia Petroleum Company's Cole 1, in section 27-21-10, is now drilling below 4392 feet, and will be the first well tested in this section of the field, about two miles south of the Ohio's Bodcaw 38. The same company's Cox 1 and Mixon 1, in section 22-21-10, the first of which has casing set at 4329 feet, and the second has a fishing job at 4214 feet, will be the first near wells to be tested, while the Ohio Oil Company's Crichton 2, in section 21-21-10, about one mile southwest of Bodcaw 38, will be the first to be tested in this direction. All of these wells will be watched with more than usual interest. Activity in this section, together with the expected drilling of three wildcat wells in the vicinity of the old Haynesville and Shongaloo fields, upon acreage that is now being assembled, will furnish excitement in plenty during the next few months.

Wildcatting seems to be on the increase in the southern part of the state, and wells that are now drilling, as well as others that will be started in the near future, indicate that the summer months will witness some important development in this section. The Texas Company's Meyers 1 well, in section 15-22-7e, Morehouse Parish, is reported to have encountered the Monroe gas rock at 2495 feet, and a good core of sand showing gas was taken from 2522 feet. The well is now shut down awaiting the delivery of casing which will be set for a test at that depth. In the meantime, the company has made recent purchases of acreage to increase their original block in the vicinity of the well, which action is taken as favorable indication that they expect to make a well when it is tested. A large block of acreage has recently been assembled in township 11, range 11, Tensas Parish, and it is understood that a well will be started immediately in the east part of the township, to be drilled to 3000 feet. The Ohio Oil Company is drilling at 4,825 feet in its Rolen Account 1, section 5-12-1w, Winn Parish, with indications that it will be drilled to a much greater depth should it fail to develop production sooner.

Pine Island

Developments in the Trinity area of the Pine Island field, in Caddo Parish, become more and more discouraging as drilling activity progresses. Four deep wells are shut down in the field awaiting the outcome of other tests, following failures in an effort to make producers of them. The Dixie Oil Company has shut down Huckaby 4, in section 11-21-15, at 4037 feet; Robertshaw 81, section 13-21-15, at 4148 feet, and Robertshaw 90, section 14-21-15, will probably be shut down within a few days, as it recently tested salt water at 4056 feet, and is being plugged back to 4036 feet for another test. Taynes Brothers' Spell 1, section 15-21-15, has been temporarily abandoned at 3911 feet, and The Texas Company's Noel B-13, section 14-21-15, has been shut down at 3979 feet. Some wells are drilling in this area, although their ultimate completion as producers seems to be doubtful in the face of the large number of failures in the field. The Dixie Oil Company is drilling at a depth of 4185 feet in its Robertshaw

92, section 13-21-15, while the Magnolia Petroleum Company has just tested salt water in its Hampton A-8, section 15-21-15, at 4022 feet, and its Robertshaw 22, section 23-21-15, at 3925 feet. Both of these wells will probably be drilled deeper.

The Dixie Oil Company definitely decided to abandon its deep test in De Soto Parish during the week, after having drilled it to 6149 feet, at which point a string of tools was lost in the hole following a small blowout. That this well was not given a more accurate test at this depth is taken as a keen disappointment by those who have watched its progress during the time that it has been drilling, especially in view of the fact that it showed indications of gas. After fishing for the tools in the hole for several days, however, it was decided that it would be almost impossible to clean the hole out and resume work; and it was, therefore, abandoned.

Arkansas

Recent favorable showings in Finley 1 that is being drilled by Simroll et al in section 12-17-14, Union County, has again directed attention to that area, following a lapse of several weeks, during which time nothing of importance developed which would warrant the continuation of interest in the few remaining wells being drilled in the sector. Simroll et al's Finley well was drilled to 3164 feet, where casing was set for a test. When plug was drilled during the week, and the hole washed to bottom with clear water, the well started flowing as though it was going to blow in, from 3169 feet. Heavy mud was pumped in the hole to hold it in until the drill stem could be pulled and arrangements made to bring the well in. There is a possibility that it may be brought in as a producer, in that no previous wells have been drilled in this immediate vicinity, the nearest wells being the recent failures in sections 10 and 11, about one mile west, and the Ohio and Jones wells in sections 1 and 2, approximately one mile north and northwest. The Pure Oil Company still entertains hope of completing its Gregory well, in section 10-17-14, as a producer, and is coring at 3113 feet in a gas sand encountered at that depth.

Logan County

Tulsa—Sinclair's Knecht 1, in the southwest of the northeast of Section 28-18-4, in the Lovell pool, Logan County, late last week made 490 barrels from Tonkawa sand at 4040-60 feet after being shot with 20 quarts. Preparations were being made to drill 10 feet deeper and shoot again from 4060-70 feet. This hole drilled to 6325 feet for a failure as a deep test, and then plugged back, finishing the early part of last week.

The Lovell pool last week had eight wells making 1192 barrels as compared with four wells in the Roxana pool, six miles north, making 5404 barrels. Garber field's 133 deep sand wells averaged 5212 barrels last week, combined.

Oxford Near Production Peak; 20,000 Barrels

Tulsa, Okla.—The Oxford field of Sumner County, Kansas, passed the 20,000 barrel level in production near the close of last week with Roxana Petroleum Corporation's Scroggins B-2, in the southwest of Section 14-32-2, flowing 2750 barrels and Barnsdall's Wenrich 4, in the northeast of the northwest of Section 23-32-2, completed Thursday for 1520 barrels in 19 hours from Stalnaker sand at 2005-2105 feet. It is an offset to Wenrich 3, which March 17 made 800 barrels in the extreme southwest portion of the field. Scroggins B-2 of Roxana was rated the best well in Kansas on completion early last week for 3772 barrels from 2012-2112 feet after a 100-quart shot. It offsets Barnsdall & Palmer's Wenrich on the north.

Roxana Petroleum Corporation at the end of the week had 9457 barrels from all its leases in the field. Amerada Petroleum Corporation et al had 5237 barrels from seven wells on its Gassaway lease, and was drilling No. 8, its last deep sand well, which was drilling at 1735 feet and due for completion in the Stalnaker within the following week. Barnsdall & Palmer had 3788 barrels from four wells on the Wenrich farm at the end of the week, including the new producer.

The remaining production of approximately 2000 barrels was divided between six operators.

Oxford field, one of the most profitable fields ever developed in Kansas, is considered about 80 per cent drilled up, and during the coming month should reach its peak if not begin undergoing a production decline, barring further extensions of the area.

Magnolia Starts Using New Coast Line

Dallas, Texas.—Magnolia Pipe Line Company has completed welding the 240-mile, 10-inch line parallel to its Mid-Continent trunk line system between Corsicana station and the Beaumont terminal, and the first throughput of crude was scheduled to be made early this week. This additional line capacity will enable Magnolia to pump Oklahoma, Kansas, North, Central and West Texas crudes to the Gulf Coast at a maximum rate of 110,000 barrels daily. A full load is assured for some time, with the aid of common carrier business already booked for Atlantic Oil Producing Company and Pure Oil Company. The above capacity does not include the eight-inch lines delivering crude into Beaumont from the Arkansas-Louisiana district and the Mirando-Luling district.

Welding crews were put to work on Magnolia's new Corsicana-Beaumont unit January 2, and the job was finished March 21, or within 10 days of the scheduled completion date. An average of three miles per day was maintained by the welders, with some time lost because of adverse weather conditions.

Six New Wells Boost Production at Long Beach

(Continued from page 97)

ting the water string, as well as stopping, within a few feet of certain ideal levels. Judging from the action of the Miley well, those ideal levels were found. If such a condition exists over a wide area, it is likely that only a small percentage of the wells drilled will be able to stop within those narrow confines. Since the well is producing from less than 30 feet of sand, production may fall off sharply. Regardless of the future action of the Miley well, it is the first satisfactory completion in the field. It is located slightly lower on the structure than the Pan-American's discovery well, which offered much promise, only to later present a series of problems which have not yet been overcome. The Pan-American has reached a depth of 3790 feet in State 2, which is testing the possibilities of the lower part of the upper sand. The well is drilling in sand and shale, with several hundred feet of doubtful formation behind. Other operators have been encouraged by the success of the Miley well, and are wondering how to get one like it. The thinness of the producing sand in the new producer makes a duplicate an interesting problem. Practically all levels have been tested with little success.

Total stocks of crude oil and all products in Pacific Coast territory increased more than 800,000 barrels during February, according to the latest figures releasced by the Pacific Coast office of the American Petroleum Institute. The increase was expected, since refinery runs have been slightly curtailed and production increased considerably during the month.

Burbank Production Declines During Week

Tulsa—The daily average yield from 2057 wells at Burbank last week was 40,452 barrels, a decline of 2260 barrels from the second week in March, thus showing the unmistakable character of new wells being completed in the east extension of the old field.

Kay County Gas Company's No. 2, in the northeast of the southwest of Section 22-24-7, Osage County, flowed 1080 barrels Thursday of last week. No. 3 of this company, in the southwest of the southeast of the southeast of Section 9-23-7, flowed 1113 barrels Wednesday and 720 barrels Thursday of last week, cutting two per cent. Both wells are producing from silicious lime, discovered in February, the discovery which primarily contributed to the present interest in the Osage land sale. Though these producers have maintained strong yields since completion they are not considered openers of productive spots to be feared with over-production. While silicious lime has proven in more than one case a big producer in Osage County, it is this factor about the two new spots which has served to minimize estimates on the value of the discoveries.

Mountain States Field Development Notes

Producer Livens Interest in Pondera County

Great Falls, Mont.—W. M. Fulton has completed his State 1 on Pondera dome, Pondera County, in the Sweet Grass arch territory, about 45 miles north of Great Falls, and has thereby focused the limelight of operators' attention on the structure which almost a year ago made its first discovery, and which since then has been inactive due to title troubles and various litigation. Fulton's well is producing about 100 barrels per day from a total depth of 2010 feet. He intends to drill below the present lime formation with core drill, but lack of necessary equipment will delay this work; in the meantime the well will be pumped. Decision to take the core tests was made in order to determine the nature of the formation underlying the producing horizon; whether or not the well will then be drilled deeper depends upon the outcome of the core test. The lime in which the well is bottomed is extremely hard, and there is some talk of shooting this sand. Fulton's well is half mile north of the Montana Pacific Oil Company's discovery well which came in last June with more than 3,000,000 feet of gas, and oil production which has never been officially measured. Location is in the southwest corner of the southeast of the northwest of section 16-27-4w.

Quickened interest in the field has resulted in the sale of several blocks of acreage; one is a 160-acre tract in the immediate vicinity to J. W. Elliott, who will drill immediately. Location will be about three-quarters mile northwest of the discovery, and west of the Fulton well. Fulton has announced that he will drill a second well immediately.

Flat Coulee

Great Falls, Mont.—Sunburst Oil & Refining Company's well on the Flat Coulee structure in the Sweet Grass Hills area has succeeded in overcoming the serious cave-in, and has casnig run to the top of the big gas sand in the Ellis. The gas is held partially under control by a mud fluid, and it is planned to allow this to remain in the hole until the casing is cut at the Baskoo sand, 2606 feet, so that production at that horizon may be recovered. The Baskoo had a heavy flow of gas in addition to the oil, but this was cased off to permit deeper drilling. More oil and a larger flow of gas was found in a 27-foot member of the Ellis series. This well is without doubt the most interesting in the Sweet Grass Hills region, and has been watched with great interest; it is the first well to have developed a commercial flow of oil in this area, which is just across the Canadian boundary.

Other wells in the Hills are reported making good progress. Bears Den Oil Company is drilling below 2750 feet on section 31-37-63; Hi-Line-66 on section 27-35-1e, is reaming at 2430 feet. Completion is expected within the week.

Bannatyne Dome

Great Falls, Mont.—Hopes for the potentialities of Bannatyne dome, in the Sweet Grass Arch territory, 45 miles north of Great Falls, were revived this week when Genou Oil & Gas Company encountered excellent showings in its No. 3, southwest of the southeast of section 5-25-13, northeast of its No. 2 discovery well. The sand in which the well is bottomed is 72 feet thick, and before drilling in, a string of 200 feet of casing will be run into the open hole. Production of the well is estimated around 30 barrels, the same as that produced by the discovery well.

Completion of the well will be delayed because of an unusual accident which occurred after the pay was struck. The derrick house collapsed, injuring several persons who were inside. This will have to be rebuilt before the work can continue. The accident occurred while casing was being lifted to permit underreaming.

Hardrock Oil Company's well in the Bannatyne field, a north offset to the Genou Oil & Gas Company's No. 2, is drilling.

Three new fields in the south end of the Arch will be tested immediately, work having been already started on Dutton dome, and at Last Chance structure. C. M. McCutcheon, J. W. Speer and J. A. Kaufman will drill the Dutton well at a location 10 miles southwest of the Bannatyne structure. Speer, Craig & McCutcheon will drill the Last Chance well which was spudded last fall with a small rig which has since been replaced by a National machine. The third well will be drilled on Goosebill dome, 35 miles north of the town of Ft. Benton, by Goosebill Landowners Company, a company recently formed by acreage owners in the area. The company has 30,000 acres under lease in the field, and preparations are completed for the drilling of a well.

Abandon Utah Test

Salt Lake City, Utah.—Utah Southern Oil Company's test on East Anticline in San Juan County, known as Canyon 1, 27-41s-19e, is reported to have encountered mica schist at 1764 feet, and granite wash at 1767 feet. Drilling continued in the granite to 1822 feet, and it has been decided to abandon the test.

The joint test of Utah Oil Refining Company, Utah Southern Oil Company and Moab Consolidated Oil Company on Cane Creek dome is reported to be drilling, still in gray lime, at 638 feet. The extreme hardness of this formation is responsible for the slow progress being made.

Limited Market for New Oregon Basin Crude

Cody, Wyo.—The new Oregon Basin field has a proved length of six miles, and a width of about two miles. If it produced light oil instead of dark, it would be the scene of tremendous activity. As it is, with a vast quantity of crude obtainable, there is no market for it. Some of it is said to have been sold for 25 or 30 cents a barrel. Cody Petroleum Company is shipping regularly to International Refining Company at Sunburst, the Arro Oil & Refining Company at Lewistown, the Rainbow Refining Company at Great Falls, the Reliance Refining Company at Kalispell, and the Lewistown Refining Company at Lewistown. One shipment was tested by White Eagle Oil & Refining Company at Casper. New freight rates affecting Canadian, Montana and Wyoming points will have considerable to do with arranging a market for the oil. The Chicago Burlington & Quincy Railroad is cooperating with the field's producers in securing lower freight rates; is building a loop spur track from the present site of the stockyards, and is building industrial tracks to care for various supply companies' warehouses. Such warehouses are under construction by Continental Supply Company, National Supply Company, Great Northern Tool & Supply Company, Ohio Oil Company, and Black, Sivalls & Bryson, Inc., and others.

Proving of the southern of the field for oil and gas has led to a renewal of pipe line and refinery talk. Laurel, Montana, because of its railroad connections, is considered the most favorable site for a refinery, and the S. C. Ferdig interests (Cody Petroleum Company, Yellowstone Oil Co., Ferdig-Wyoming Oil Company, etc.) are said to plan a pipe line to the town; it also is reported that Illinois Pipe Line Company considers extension of its line from the field to Cody on to Laurel.

The southeastern part of the field appears to be practically proved. Lenco Petroleum Company (Leonard interests) encountered a five million floot flow of gas at 2905 feet in its test on 33-50-100. This would seem to be substantial evidence of the productivity of that section of the structure.

Denver, Col.—Continental Oil Company has purchased the interests of J. J. Fabrizio, H. H. Utley, Blake Rogers, A. B. Rosenberg, and William and Henry Donnelly of the Marjo-San Isabel Company in the south extension of the Florence field in Colorado. On the acreage involved there are two producing wells, and the territory is considered to be most promising.

United States Daily Average Production

Figures below are taken from the complete revised estimates of the AMERICAN PETROLEUM INSTITUTE except for the current week, which are advance estimates issued by the A. P. I. and are subject to revision:

1927	Oklahoma	Kansas	Texas (Outside Gulf Coast)	Gulf Coast	North Louisiana	Arkansas	Eastern States	Rocky Mountain	California	United States Daily Ave.	United States Total
January	598,500	117,200	466,400	173,900	52,900	131,550	107,850	84,450	653,450	2,386,200	73,972,150
February	693,350	116,250	479,800	154,600	52,800	128,200	107,150	85,300	642,700	2,460,150	68,884,300
March	710,350	116,100	475,000	154,750	51,450	124,500	104,400	87,600	640,850	2,465,000	76,414,900
April	723,700	115,400	477,300	155,100	50,500	113,350	108,000	89,350	644,550	2,477,250	74,317,750
May	742,200	114,600	488,700	151,300	47,450	112,700	114,000	89,300	633,550	2,493,800	77,307,700
June	768,600	112,200	480,800	151,650	49,150	112,450	111,850	86,050	638,550	2,511,300	75,338,900
July	846,750	107,750	475,800	142,950	56,200	109,900	111,800	86,950	620,700	2,558,800	79,322,300
August	832,900	105,100	483,450	139,350	56,950	104,750	114,600	80,750	621,450	2,539,300	78,717,850
September	797,450	105,200	493,750	142,900	53,450	101,350	110,800	74,500	637,250	2,516,650	75,498,900
October	782,300	105,100	497,900	138,400	51,300	100,450	113,600	73,250	629,000	2,491,300	77,230,000
November	766,900	106,650	501,750	138,100	49,400	97,850	114,900	75,050	623,850	2,474,450	74,233,500
December	720,700	106,150	531,650	138,500	47,200	94,950	111,250	77,150	624,600	2,452,150	76,017,050
1928											
January	675,450	108,300	523,300	125,450	45,250	90,050	109,600	77,000	617,100	2,371,500	73,516,500
February	664,450	110,550	538,750	115,800	45,300	88,250	104,850	75,550	614,750	2,358,250	68,388,850
March 3	653,950	112,750	545,950	118,450	45,300	86,700	103,000	76,250	614,400	2,356,750	16,497,250
March 10	653,400	113,100	544,950	119,150	44,900	86,350	102,350	77,300	614,200	2,355,700	16,489,900
March 17	651,650	110,300	582,350	121,500	44,750	85,900	101,750	80,900	609,500	2,388,600	16,720,200
March 24	644,100	111,450	583,650	118,750	44,000	85,300	101,250	80,500	618,000	2,387,000	16,709,000
Increase	.....	.....	1,150	1,300	.....	.....	.....	.....	8,500	.....	.....
Decrease	7,550	.....	.....	2,750	750	600	500	400	.....	1,600	11,200

TEXAS

(Outside Gulf Coast)

PANHANDLE DISTRICT

	March 24	March 17
Carson County	6,800	6,900
Gray County	19,800	18,350
Hutchinson County	43,700	44,950
Wheeler County	1,050	1,050
Others	50	50
Totals	71,400	71,300

NORTH TEXAS

Archer County	18,500	18,900
Baylor County	100	100
Burkburnett	13,00	12,950
Clay County (Petrolia)	500	500
Electra	11,750	11,500
Iowa Park-KMA	1,950	1,950
Montague and Cooke Cos.	12,000	12,100
Wilbarger	9,750	9,800
Totals	67,550	67,800

WEST CENTRAL TEXAS

Brown County	12,600	12,550
Callahan County	4,200	4,150
Coleman County	1,850	1,700
Eastland-Desdemona	8,900	8,750
Jack County	1,350	1,400
Palo Pinto County	500	500
Shackelford County	8,350	8,000
Stephens County	7,600	7,700
Throckmorton County	1,000	1,000
Young County	8,300	8,400
Others	600	650
Totals	55,250	54,800

WEST TEXAS

Crane-Upton Counties	84,250	87,300
Crockett County	2,500	2,500
Howard County	4,200	3,950
Jones County	1,200	1,200
Mitchell-Scurry Cos.	3,200	3,300
Pecos County	45,000	46,200
Reagan County	19,500	19,800
Winkler County	180,100	175,000
Others	2,100	2,000
Totals	342,050	341,250

EAST CENTRAL TEXAS

Corsicana-Powell	11,750	11,850
Currie	550	550
Mexia	7,400	7,400
Nigger Creek	1,200	1,250
Richland	550	550
Wortham	2,000	2,000
Totals	23,450	23,600

SOUTHWEST TEXAS

Dale	900	400
Laredo District	6,600	6,700
Luling	13,750	13,800
Lytton Springs	1,500	1,500
Somerset	800	800
Others	400	400
Totals	23,950	23,600
T'tl Tex. (Outside Gulf Coast)	583,650	582,350

TEXAS GULF COAST

Barbers Hill	600	600
Batson	1,400	1,400
Big Creek	1,750	1,950
Blue Ridge	7,000	6,800
Boling	2,800	2,900
Damon Mound	850	900
Goose Creek	7,150	7,200
Hull	11,600	11,700
Humble	1,400	1,400
Orange County	3,800	3,800
Pierce Junction	9,000	9,050
Saratoga	1,050	1,000
Sour Lake	3,500	3,500
South Liberty	3,400	2,700
Spindle Top	35,700	37,900
West Columbia	8,000	8,750
Others	2,000	2,250
Totals	101,000	103,800
Texas Total	684,650	686,150

OKLAHOMA

North Braman	2,850	2,850
South Braman	1,850	1,800
Blackwell	3,750	3,750
Hubbard	2,650	2,850
Thomas	1,500	1,650
Tonkawa	14,800	14,800
Garber	9,950	9,850
Burbank	41,950	44,150
Osage (outside Burbank)	30,300	30,200
Watchorn	950	950
Cushing	21,100	21,150
Yale Jennings	8,850	8,850
Davenport	2,300	2,300
Bristow Slick	24,700	24,800
North Okmulgee	15,700	15,700
Lyons Deaner	7,300	7,400
Stroud	1,100	1,100
Cromwell	10,200	10,150
Papoose	5,000	5,050
Wewoka	7,800	7,850
Seminole	55,800	56,000
Searight	17,750	18,150
Earlsboro	97,800	101,050
Duncan District	6,550	6,600
Graham	5,900	5,850
Healdton	14,100	14,150
Scholem Alechem	13,200	13,000
Bowlegs	82,550	84,850
Little River	40,100	40,500
Fox	1,750	1,750
Hewitt	8,800	8,800
Others	85,200	83,750
Totals	644,100	651,650

CALIFORNIA

Santa Fe Springs	37,500	37,500
Long Beach	123,500	119,500
Huntington Beach	57,500	58,000
Torrance	19,000	19,000
Dominguez	12,500	12,500
Rosecrans	7,000	7,000
Inglewood	29,500	28,800
Midway-Sunset	81,000	80,500
Ventura Avenue	47,500	45,000
Seal Beach	39,000	39,000
Others	164,000	162,700
Totals	618,00	609,500

KANSAS

Greenwood County	30,100	30,200
Florence-Covert	1,400	1,400
Peabody-Ebling	3,700	3,750
Eldorado-Towanda	14,200	14,200
Augusta-Fox Bush	4,150	4,150
Rainbow Bend	1,650	1,600
Russell	2,800	2,900
Churchill	11,450	12,200
Oxford	16,500	14,400
Others	25,500	25,500
Totals	111,450	110,300

ARKANSAS

	March 24	March 17
El Dorado	5,450	5,450
Champagnolle	900	950
Smackover Light	8,300	8,400
Smackover Heavy	65,450	65,800
Stephens	1,100	1,100
Nevada	1,600	1,700
Lisbon	2,350	2,400
Others	150	100
Totals	85,300	85,900

NORTH LOUISIANA

Homer	4,400	4,400
Hanesville	6,250	6,300
Caddo Light	10,700	11,400
Caddo Heavy	3,900	3,850
DeSoto-Red River	4,100	4,100
Elm Grove	550	550
Bellevue	1,100	1,100
Cotton Valley	4,500	4,500
Urania	7,800	7,850
Pleasant Hill	700	700
Totals North Louisiana	44,000	44,750

LOUISIANA GULF COAST

Edgerly	1,400	1,200
Evangeline	950	950
Lockport	4,050	3,900
Vinton	4,900	5,100
Sulphur Dome	1,200	1,500
East Hackberry	1,950	2,000
Sweet Lake	250	300
Bayou Boullion Dome	2,800	2,500
Others	250	250
Total Louisiana Gulf Coast	17,750	17,700
Louisiana Total	61,750	62,450

MOUNTAIN STATES

WYOMING

Salt Creek	41,050	39,850
Grass Creek	2,500	2,550
Elk Basin	1,100	900
Big Muddy	3,200	2,700
Lost Soldier	2,850	4,650
Rock River	2,500	2,800
Lance Creek	750	750
Others	4,900	4,100
Totals	58,850	58,300

MONTANA

Cat Creek	1,800	1,800
Sunburst	10,000	10,000
Others	150	150
Totals	11,950	11,950

COLORADO

Moffats (Craig)	1,450	1,550
Fort Collins	3,200	3,550
Florence	1,100	1,250
Others	1,700	1,800
Totals	7,450	8,150

NEW MEXICO

Table Mesa	....	100
Artesia	1,150	1,300
Hogback	500	550
Rattlesnake	400	350
Others	200	200
Totals	2,250	2,500
Toals Mountain States	80,500	80,900

EASTERN STATES

(Including Ill., Ind., Ohio, W. Va., Pa., Ky., and N. Y.)	101,250	101,750

PRODUCTION SUMMARY

East of Rockies	1,688,500	1,697,200
Total United States	2,387,000	2,388,600

Pipe Line Telegraph Men Form Association

Fort Worth, Texas — Superintendents of the telephone and telegraph departments of the principal oil and gas pipe line companies operating in the Southwest have formed an organization to be known as the Petroleum Industry Electrical Association. A large group of men charged with the responsibility of installing and maintaining communication for oil and gas carriers assembled in Fort Worth March 21 and 22 to attend the annual meeting of the Texas Independent Telephone Association, and the creation of the new petroleum association followed.

T. J. McMahon, The Texas Pipe Line Company, Houston, was elected president of the newly formed organization, and other officers follow: F. S. Leonard, Shell Pipe Line Company, St. Louis, first vice-president; C. E. Foster, Oklahoma Pipe Line Company, Muskogee, second vice-president; H. E. Browne, Prairie Pipe Line Company, Independence, Kansas, secretary; and W. T. Bulla, Empire Pipe Line Company, Bartlesville, Oklahoma, treasurer.

Directors: Andy J. Balcom, Magnolia Pipe Line Company, Dallas; C. A. Pritchard, Continental Pipe Line Company, Wichita Falls; R. M. Bayless, Humble Pipe Line Company, Houston; Dick Weldon, Prairie Pipe Line Company, Tulsa; F. C. Baker, Marland Oil Company, Ponca City; H. C. Miller, Pure Oil Company, Chicago; J. H. Borchers, The Texas Pipe Line Company, Houston; H. H. Watson, Magnolia Pipe Line Company, Dallas; C. O. Shirley, Phillips Petroleum Company, Bartlesville, Oklahoma, and F. H. Groves, Pure Oil Pipe Line Company of Oklahoma, Tulsa.

A spirit of cooperation has always prevailed among the telephone and telegraph men in the petroleum industry during times of floods, fires and storms, and the association will aid in promoting this friendly attitude. Technical sessions will be held at the future meetings, and various problems arising within the industry that bear mutual interest will be handled by this new organization. An effort will be made to gain members in all other oil and gas producing areas in the country, therefore making the work of the association national in scope.

Tulsa has been selected for the meeting place of the first annual gathering to be held next spring.

West Texas Production Details

WINKLER COUNTY

	Producing Wells	Daily Average Produc.
Hendrick Field—		
Roxana Petroleum Corp.	12	30,350
Humble Oil & Refining Co.	8	27,350
Cranfill & Reynolds, Inc.	4	*14,040
Gulf Production Co.	7	13,985
Atlantic Oil Producing Co.	8	*13,755
Landreth Prod. Corp. & Roxana	5	13,185
Southern Crude & R. A. Westbrook	11	*12,385
Independent Oil & Gas Co.	12	*9,840
Republic Production Co.	2	8,730
Texon Oil & Land Co.	3	8,475
Pure Oil Co.	6	*6,650
Atlantic & Collett-O'Keefe	1	*5,840
Southern Crude & Dixie Oil Co.	11	*5,270
Joe Maxwell & L. C. Turman	6	4,800
Magnolia Petroleum Co.	6	3,655
Murchison Oil & Cranfill Bros.	5	1,065
Eastland Oil Co.	1	40
Llano Oil Co. & Roxana	1	....
Totals	108	179,415

CRANE COUNTY

	Producing Wells	Daily Average Produc.
Church & Fields—		
Simms Oil Co. & Atlantic Oil Prod. Co.	31	9,980
Landreth Production Corp.	16	9,445
Prairie Oil & Gas Co.	12	9,305
Tidal Oil Co. & Turman-Maxwell	25	6,005
Humble Oil & Refining Co.	13	4,470
Magnolia Petroleum Co.	33	4,380
Eastland Oil Co. & Collett-O'Keefe	8	3,815
Pecos Oil Co.	16	3,395
Independent Oil & Gas Co.	7	2,110
Gulf Production Co.	11	1,600
Church-Fields & Bert Weekly	3	930
The Texas Co.	2	235
Geo. Church & Bob Fields	2	210
Stidham & Thrasher	1	10
Totals	180	55,890
Gulf-McElroy—		
Gulf Production Co.	58	16,790
Gulf-Waddell		
Gulf Production Co.	1	20
Marland-Hughes—		
Marland Oil Co.	14	505
The Texas Co.	9	195
McMan Oil & Gas Co.	2	60
Independent Oil & Gas Co.	1	10
Totals	26	770
Totals for Crane County	265	73,470

REAGAN COUNTY

	Producing Wells	Daily Average Produc.
Big Lake Oil Co.	128	15,450
Texon Oil & Land Co.	79	4,435
Skelly Oil Co. et al.	1	....
Totals	207	19,775

PECOS COUNTY

	Producing Wells	Daily Average Produc.
Yates Field—		
Mid-Kansas & Transcontinental Oil Co.	64	*15,030
The California Co.	26	*7,675
Gulf Production Co.	17	*6,295
Gulf Production Co. (Crockett County)	3	735
McMan O. & G. Co. & Marland Oil Co.	15	*4,220
Roxana Petroleum Corp.	12	*4,015
Humble Oil & Refining Co.	10	*3,085
Simms Oil Co.	6	*2,895
Marland Oil Co.	10	*975
McMan Oil & Gas Co.	2	515
Red Bank Oil Co.	2	475
Mazda Oil Corp. & Savoy Oil Co.	1	285
Kirby Pet. Co. & Edson Pet. Co.	1	265
Osage (Grayburg) & T. T. Word	1	*175
Phillips Petroleum Co.	1	90
Skelly Oil Co.	1	65
Pandem Oil Corp. & Gibson Oil Corp.	7	*25
Totals	179	46,820

MISCELLANEOUS

	Producing Wells	Daily Average Produc.
Upton County	286	13,775
Howard County	136	*4,075
Mitchell County	139	3,360
Crockett County	35	1,720
Jones County	21	1,340
Fisher County	1	230
Runnels County	2	165
Loving County	2	110
Scurry County	5	40
Ector County	1	15
Totals	628	24,830
Totals for all fields	1,387	344,310

*Production partially pinched.

COMPLETIONS FOR PAST WEEK IN U.S. FIELDS

SUMMARIZED REVIEW OF FIELD RESULTS

State—	Completions This Week	Completions Last Week	Producers This Week	Producers Last Week	Gas Wells This Week	Gas Wells Last Week	Failures This Week	Failures Last Week	Initial Production This Week	Initial Production Last Week
Arkansas	2	2	2	2	..	..	..	..	38	95
California	14	20	12	12	..	..	2	8	13,165	6,650
Colorado	1	..	1	..	..	..	..	..	300	....
Illinois	6	..	5	..	1	..	..	..	113	....
Indiana	4	..	3	..	..	..	1	..	110	....
Kansas	33	19	18	9	2	4	13	6	1,807	1,350
Kentucky	18	22	13	15	1	..	4	7	651	850
Louisiana	14	16	3	5	7	7	4	4	270	5,775
Michigan	..	1	..	1	..	..	..	..	....	30
Montana	2	..	2	..	..	..	..	..	1,600	....
New York	..	12	..	12	..	..	..	..	....	25
Ohio	29	18	11	3	6	7	12	8	516	176
Oklahoma	60	65	23	42	9	8	28	15	4,059	10,913
Pennsylvania	4	36	2	30	2	5	..	1	32	68
Texas	110	114	59	67	9	10	42	37	36,309	34,278
West Virginia	18	21	3	4	12	15	3	2	55	42
Wyoming	3	..	3	..	..	..	..	..	639	....
Totals	318	346	160	202	49	56	109	88	59,664	60,252
Increase this week	...	..	..	..	..	..	21	..	....	....
Decrease this week	28	..	42	..	7	..	..	..	588	....

MOUNTAIN STATES

MONTANA

Company, Well and Location	Initial Production Bbls.	Depth
PONDERA DOME—		
W. M. Fulton, nw 16-27-4w	100	2010
KEVIN-SUNBURST—		
California Co., Lorenson 16, se 28-35-2w	1500	1490

WYOMING

Company, Well and Location	Initial Production Bbls.	Depth
SALT CREEK—		
Midwest Ref. Co., Wyoming Associated 36, ne 34-40-79	123	1120
Midwest Oil Co., sw 24-40-79	452	2470
Midwest Oil Co., se 27-40-79	64	2150

COLORADO

Company, Well and Location	Initial Production Bbls.	Depth
FREMONT COUNTY—		
W. F. McCormick, se 3-19-70	300	1280

CALIFORNIA

Company, Well and Location	Initial Production Bbls.	Depth
BALDWIN HILLS-INGLEWOOD—		
Associated Oil Co., Vickers 11, wo	125	2700
DOMINGUEZ—		
Shell Co., Reys a7A, wo	65	4075
KERN FRONT—		
California Petroleum Corp., 3, 14-28-27	150	2035
Chanslor-Canfield Midway Oil Co., 18, 23-28-27	175	2160
LONG BEACH—		
Superior Oil Co., Crew 3	3700	6410
McKeon Drilling Co., Macrate 3, wo	1700	6487
RICHFIELD—		
Union Oil Co., Y. L. W. 15	50	4490
RINCON—		
Miley Oil Co., Hobson 3	1700	3100
SEAL BEACH—		
George F. Getty, Alamitos 12, wo	150	6540
SUNSET—		
Standard Oil Co., Rass 4	50	5450
VENTURA—		
Associated Oil Co., Lloyd 102	3600	7210
Lloyd 51	1700	7100

EASTERN STATES

PENNSYLVANIA

Company, Well and Location	Initial Production Bbls.	Depth
GREENE COUNTY—		
Manufacturers Light & Heat Co., Nuss 1	25	....
Carnegie Nat. Gas Co., Iiams 1	¶1½	....
Long & Myers, Yeager 1	¶1½	....
ALLEGHENY COUNTY—		
Scott & Co., Fry 1	7	....

WEST VIRGINIA

Company, Well and Location	Initial Production Bbls.	Depth
RITCHIE COUNTY—		
Hope Const. & Ref. Co., Jordan 3	15	....
L. N. Rinehart & Co., Wilson 2	¶½	....
David French & Co., Payne 3	¶½	....
ROANE COUNTY—		
United Carbon Co., Keene 4	¶1½	....
United Fuel Gas Co., Dickinson 1	¶1½	....
CALHOUN COUNTY—		
Hope Nat. Gas Co., Hardman 1	¶1¼	....
Kingsbury & Dollman, Lynch 2	*	....
BRAXTON COUNTY—		
Hope Nat. Gas Co., Davis 1	¶2	....
United Fuel Gas Co., Engle 1	*	....
CLAY COUNTY—		
Ohio Fuel Oil Co., Reed 1	30	....
MARSHALL COUNTY—		
Manufacturers Light & Heat Co., Anderson 2	10	....
GILMER COUNTY—		
G. C. Roberts & Co., Beall 1	¶2	....
LINCOLN COUNTY—		
United Fuel Gas Co., Horse Creek Land & Coal 3	¶¾	....
MARION COUNTY—		
Owens Bottle Machine Co., Prickett 1	¶2	....
LEWIS COUNTY—		
Earl Goodwin, Lowther 1	¶1¼	....
WETZEL COUNTY—		
Carnegie Nat. Gas Co., Ott 1	¶1¼	....
DODDRIDGE COUNTY—		
Travis & Trainer Bros., Martin 1	¶½	....
JACKSON COUNTY—		
Ravenwood Oil Co., Parsons 1	*	....

SOUTHEASTERN OHIO

Company, Well and Location	Initial Production Bbls.	Depth
WASHINGTON COUNTY—		
Thomas McKay & Co., McMahon 1	2	....
The Pure Oil Co., Breckenridge 17	¶¼	....
W. T. Warren & Co., McBride 1	4	....
Burns & Co., Wymer 6	¶¼	....
Burton & Co., Vanscoy 2	*	....
Thomas McVey & Co., Burnett 1	*	....
NOBLE COUNTY—		
Twin Six Oil Co., Myers 1	*	....
R. C. Houlin & Co., Schafer 1	2	....
Way Wicker & Co., Crooks 2	¶½	....
Stoffel Drilling Co., Stoffel 1	*	....
Markey & Co., Bonar 1	*	....
MORGAN COUNTY—		
Charles Woodyard & Co., Woodyard 5	*	....
JEFFERSON COUNTY—		
Blackburn & Co., Cashier 1	*	....

CENTRAL OHIO

Company, Well and Location	Initial Production Bbls.	Depth
ATHENS COUNTY—		
Ohio Fuel Supply Co., Black Diamond Coal 3	*	....
Wehrle Interests, Williams 1	¶1	....
Bowman O. & G. Co., Brown 1	¶½	....
O. C. Dunn, Finsterwald 17	*	....
J. H. Honshausen, Hopper 1	¶¾	....
GUERNSEY COUNTY—		
Leonard O. & G. Co., Jas Joyne & Co. 7	50	....
Davis Bros. Co., Ruby 1	65	3516
LICKING COUNTY—		
Hope Constr. & Ref. Co., McKnight 1	*	750
Evans 1	16	....
PERRY COUNTY—		
William Cline & Co., Sowers 2	302	....
MUSKINGUM COUNTY—		
Hope Constr. & Ref. Co., Sidle 1	5	....
FAIRFIELD COUNTY—		
Ruff-Stewart O. & G. Co., Griffis Hrs. 1	*	2620
ALLEN COUNTY—		
H. F. Kelly & Co., Miller 3	40	1367
SENECA COUNTY—		
J. H. Murphy & Co., Griffith-Leister 3	20	1482
HANCOCK COUNTY—		
Kirk, Flanion & Co., Brickman 11	10	1360
AUGLAIZE COUNTY—		
Wesley Sprague, Fritz 8	*	1203

ILLINOIS

Company, Well and Location	Initial Production Bbls.	Depth
LAWRENCE COUNTY—		
Dark Bend Oil Co., Mann 1	77	1543
Phipps, Blosser & Co., Pond 1	5	1700
Ohio Oil Co., Grayson 4	1	1881
CLARK COUNTY—		
W. C. McBride, Inc., Connelley 2	20	550
CRAWFORD COUNTY—		
One-Sixth Oil Co., Evans 1	10	1041
WABASH COUNTY—		
Wirebach & Co., Keyser 7	¶1	1025

INDIANA

Company, Well and Location	Initial Production Bbls.	Depth
VIGO COUNTY—		
Siosi Oil Corp., Riggs 5	20	2198
Riggs 7	40	2198
SULLIVAN COUNTY—		
Ohio Oil Co., Hopewell 1	50	2244
Billman & Co., Maple 1	*	724

KENTUCKY

Company, Well and Location	Initial Production Bbls.	Depth
OHIO COUNTY—		
Hartford Dredging Co., Coomes 1	75	907
Jordan, Short & Co., Jolly 3	50	....
James C. Ellis, Hoover 2	50	....
Hoover 3	50	....
Hoover 4	*	....
S. H. Russell & Co., Rhodes 3	30	462
G. H. Rice & Co., Bellamay 1	20	428
J. S. Lyle & Co., Metcalf 1	*	....
W. H. Ford, Holbrook & Wells 2	*	790
J. M. Meredith, Haynes 1	*	550
DAVIESS COUNTY—		
Weideman Oil Co., Fields 1	165	....
L. C. Young & Co., Hayden 3	150	....
Conrad Kipp & Co., Mattingley Hrs. 2	25	....
WARREN COUNTY—		
W. Wareham, Graham 3	6	992
CLAY COUNTY—		
Petroleum Explo. Co., Milton 1	¶2	....
WOLFE COUNTY—		
M. B. French & Co., Chapman 1	10	....
A. Burnett, Bush 1	10	....
Brenner & Adams, Adams 1	10	....

OKLAHOMA

Company, Well and Location	Initial Production Bbls.	Depth
GARFIELD COUNTY—		
Marland Oil Co., Disney 1, c nw sw, 24-24-3w	*	5125
GARVIN COUNTY—		
Magnolia Pet. Co., Rinfer 2, sec nw ne ne, 15-1n-3w	*	1930
GRADY COUNTY—		
Joe Anderson, Wilde 1A, nec se se, 28-3n-5w	75	2538
Little Nick Oil Co., McCaughtry 5, nwc 35-5n-8w	¶18	2400
Okla. Gas Utilities Corp., Serrata 3, sw nw nw, 25-5n-8w	¶9	2450
Hall & Briscoe, Hill 1A, sec nw sw sw, 25-5n-8w	¶18	2400
Okla. Gas Utilities Corp., Farwell 5, nw sw se, 23-5n-8w	¶25	2400
Carter Oil Co., Wolford 9, se nw sw, 16-3n-5w	*	2558
Magnolia Pet. Co., Pursley 1, se sw nw, 8-4n-6w	*	3905
GRANT COUNTY—		
Argo Oil Co., Swaggert 1, sw se se, 15-27-3w	575	4115
HUGHES COUNTY—		
Carter Oil Co., Alexander 6, nw se ne, 19-8-10e	*	4660

Company, Well and Location	Initial Production Bbls.	Depth
KAY COUNTY—		
Royal O. & G. Co., Kelle 1, c sw se, 33-28-1e	¶1	904
Industrial O. & G. Co., Athey 1, c se se, 35-28-1w	¶1	750
Carter Oil Co. & Ona Oil Co., Shimp 7, c ne sw, 17-29-1e	¶6	1795
Miller Bros., Anderson 1, nwc se, 10-25-1e.	*	4167
Royal Oil & Gas Co., Courtney 1, nwc, 8-27-1e	*	1305
P. S. Wheeler, Wheeler 1, se sw sw, 14-27-1w	*	917
MUSKOGEE COUNTY—		
P. Boyle, Simmons 2, cwl sw ne, 10-15-15e	*	1653
OKFUSKEE COUNTY—		
W. L. Umbrum Tiger 1, nw se nw, 2-10-11e	15	1748
OKMULGEE COUNTY—		
H. C. Detrick, et al, Cittim 1, nwc ne se, 12-13-11e	*	....
Eagle Pitcher Lead Co., Conner 1, sec sw, 4-12-14e	*	2870
G. N. Buzzard, Thompson 1, nwc ne ne, 27-11-13e	*	3800
OSAGE COUNTY—		
A. G. Oliphant 1, sec ne nw nw, 7-24-9e	15	2621
Standish Oil Co. 7, nwc se, 2-25-11e	15	1739
Marland Oil Co. 4, se ne se, 27-25-9e	75	2190
Lewis Prod. Co., 5, ne sw sw, 2-26-6e	700	2910
Osage Oil Synd. 1, nwc ne, 1-21-8e..	*	500
Phillips Pet. Co. 2, se sw se, 7-27-6e	*	....
PAWNEE COUNTY—		
Garber, Pulse et al, Gilbert 1A, swc se, 21-21-8e	*	1720
PAYNE COUNTY—		
Fern O. & G. Co. 1, nwc ne sw, 15-19-5e	*	3280
PONTOTOC COUNTY—		
J. C. Crosby & Hicks, Nowbaby 1, se ne sw, 8-4n-7e	60	1054
W. R. Ramsey McElroy 1, nw ne sw, 17-5n-8e	30	2902
Homaokla Oil Co., McCall 5, sec nw, 17-5-8e	20	2449
C. B. Shaffer, Yoakum 5, swc, 9-5-8e	350	2497
Westheimer Milner 1A, sec, 8-5-8e..	25	817
W. R. Ramsey, Patterson-Harjo 4, se sw sw, 29-5-8e	*	....
POTTAWATOMIE COUNTY—		
Gypsy Oil Co., Cecil 2, nw sw ne, 19-7-4e	490	3891
Magnolia Pet. Co., Risenhoover 2, ne se ne, 14-7-4e	14	3595
Superior Oil Corp., Cloude 2, nec nw, 24-7-4e	*	....
McCullough Oil Co., Long 1, se sw sw, 18-7-4e	*	4060
Indep. O. & Go. C., Darby Pet. Co., Hamby 3, se nw nw, 14-7-4e	*	....
SEMINOLE COUNTY—		
Mid-Continent Pet. Corp., Fleet 2, ne nw se, 7-5-8e	735	2572
Magnolia Pet. Co., Pattey 4, ne se ne, 35-8-6e	200	4299
Rhoades 3, sw nw sw, 12-8-6e....	225	4131
The Texas Co., Brinsfield 1, nec nw, 10-9-8e	¶2	4357
Carter Oil Co., R. Smith 1, swc, 7-8-7e	*	4435
Tidal Oil Co., Harjoche 8, nwc sw, 10-8-6e	*	4683
Barnsdall Oil Corp., Sango 5, se sw nw, 1-9-5	*	4413
Snowden & McSweeney, Epply 2, nwc ne, 15-10-8e	*	3960
STEPHENS COUNTY—		
American Pipe Line Co., Bond 1, nwc sw, 7-2s-7w	300	1539
Magnolia Pet. Co., Green 2, nwc ne, 13-1s-4w	¶46	2625
Big Twelve Oil Co., Taliaferro 5, sec sw, 27-1s-8w	40	1702
Murphy Oil Co., Fobb "B" 11, nwc ne sw, 12-2s-8w	*	2135
TULSA COUNTY—		
Berry Funk 3, nwc ne, 3-16-12e	5	1525
Jackson & Wise, Warrior 1A, swc nw ne, 21-19-12e	5	1553
Minshall et al, Fife 5, nec se se sw, 15-19-11e	20	2170
Superior Oil Corp., McKee 10, swc, 6-19-10e	55	2073
Caldwell & Page, Hawkins 1, nwc sw, 18-19-12e	*	2327
Glidden Oil Corp., Johnson 1A, swc ne, 15-19-11e	*	2275
WAGONER COUNTY—		
O. A. Sewell, et al, McIntosh 2, cel se ne, 18-17-16e	*	1658

KANSAS

BUTLER COUNTY—		
Rogers et al, Drum-Bitler 17, swc se ne, 20-26-8e	*	....
Federal Oil Co., Drum-Bitler 12, cnl ne, 31-26-8e	*	1298
La Robb Oil Co. et al, Sluss 1, sec ne sw, 6-27-6e	*	3175
Empire O. & R. Co., Hedderman 1, sec 13-28-5e	*	3188
Basom et al, Tavender "A" 1, nec se ne, 26-28-6e	*	2830
COFFEY COUNTY—		
McCullough Oil Co., Eppinger 1, cwl se nw, 23-22-13e	15	1853
COWLEY COUNTY—		
Barnsdall Oil Corp., Roberts 1, nec se ne, 7-33-3e	150	3490
Roxana Pet. Corp., Martin 1, nwc sw, 19-31-3e	*	2005
Watchorn O. & G. Co., Esch 1, c nw nw, 4-34-6e	*	770
GREENWOOD COUNTY—		
Skelly Oil Co., Pixlee 2, swc se se, 3-22-10e	100	2191
Theta Oil Co., Fankhouser 6, nec se se, 23-22-12e	125	1711
Darby Pet. Co., Schwab 9, sec nw, 30-22-13e	300	1767
Polhamus et al, May 1, sec 36-25-10e	35	1990
Gilliland Oil Co., Burtin 1, cel se se, 9-25-13e	32	1511
Devine et al, Bradford 1, swc ne, 22-26-11e	¶1	660
Ritchey & Moore, Pixlee 1, nec sw, 4-22-10e	*	2400
Schwartz et al, Spencer 1, swc, 28-22-11e	*	2036
Empire O. & R. Co., Schwab 10, nec se, 25-22-12e	*	1865
Superior Oil Corp., Leu 1, sec nw ne, 33-22-13e	*	1922
Carnes & Bly Smith 1, nec se, 4-24-13e	*	1801
McPHERSON COUNTY—		
Tattlock et al, Chinberg 1, nec nw nw, 32-18-2w	¶8	2957
MARION COUNTY—		
Prairie O. & G. Co., Rezineck 1, nwc ne sw, 22-17-4e	190	2433
Phillips Pet. Co., Frank 1, nec sw se se, 15-17-4e	25	2464
Lariaux et al, Barnes 1, sec ne ne, 22-17-4e	90	2443
Shoupe 1, nec se ne ne, 22-17-4e...	65	2417
Phillips Pet. Co., Rezineck 2, swc nw sw, 22-17-4e	35	2443
Ward et al, Layton 1, nwc se ne ne, 22-17-4e	75	2444
Phillips Pet. Co., Peterson 3, nwc sw nw, 23-17-4e	40	2372
Reynolds et al, Nettrour 1, swc nw nw, 23-17-4e	90	2428
SUMNER COUNTY—		
Roxana Pet. Corp., Fritz 1A, nec, Tract 5, City of Oxford, 14-32-2e..	15	1275
Washahoma Oil Co., Bussard 1, nec se ne se, 26-31-2e	*	1912

ARKANSAS

OUACHITA COUNTY—		
Little Fay Oil Co., Robertson 4, 25-15-16	30	2051
UNION COUNTY—		
C. H. Allison, Fitzgerald 10, 17-18-15	8	2175

LOUISIANA

BOSSIER PARISH—		
Woodley & Collins, Bain 1, 31-23-11.	¶40	3070
Bollinger 1, 36-23-12	¶27	3073
CADDO PARISH—		
Simplex Oil Co., Thomas 3, 15-20-15	5	2355
DE SOTO PARISH—		
Benson Oil Co., Wolf 3, 3-10-13	¶10	3064
OUACHITA PARISH—		
United Carbon Co., Nelson Fee 2, 6-19-15e	¶34	2180
RICHLAND PARISH—		
So. Carbon Co., Spann 1, 8-16-6e....	¶39	2449
Sartor 2, 20-16-6e	¶53	2440
WEBSTER PARISH—		
Magnolia, Munn 1, 29-23-9	¶12	2670

SOUTH LOUISIANA

EDGERLY—		
Wilson-Broach, Wilson 6	200	3465
VINTON—		
Marrs McLean, C. & N. G. 1	65	2240

TEXAS

TEXAS GULF COAST

BLUE RIDGE—		
H. B. Gordon, Jr., Trust., Blakely 2	1000	3175
GOOSE CREEK—		
Humble, Gaillard 5	30	2960
HULL—		
Gulf, Phoenix Dev. Co. 40	110	3025
ORANGE—		
Rex Pet. Co., Carbello 10	30	3150
PIERCE JUNCTION—		
Moody Corp., Hume 3	250	4880
Joe Bashara, M. J. Bashara Fee B-2	2500	4535
SARATOGA—		
Rio Bravo, Jordit 81	180	1180
SOUR LAKE—		
Gilbert Oil Co., Fee 101	*	635

EAST TEXAS

HARRISON COUNTY—		
Doney et al, Furrh 2, J. Lipscomb sur	¶3	1015
State Line O. & G. Co., Waterman 6, J. Short sur	1	2918
PANOLA COUNTY—		
Magnolia, Steele 14, B. C. Jordan sur	¶2	2343

NORTH TEXAS

ARCHER COUNTY—		
L. T. Burns & Humble, Wilson 3...	10	1567
Continental Oil Co., Gose 60	*	5280
Consolidated Oil Co., Wilson 1, lot 11	*	1663
R. P. Dorian et al, Finnell 2	7	690
Fain-McGaha Oil Corp. & Humble, Wilson 2-C	95	1565
Fain-McGaha & United Producers Co., Wilson 3-B	195	1560
Wilson 4-B	*	1582
Harry Hines & Continental Oil Co., Helm 1	*	1563
Hines & Trout, Andrews 1	*	1555
D. O. Johnson et al, Wilson 3-A....	80	1564
Wilson 2-B	170	1565
Riney-Bailey et al, Wilson 1, lot 101	*	1650
BURKBURNETT—		
Grayce Oil Co., Schmisseur 4	15	1842
COOKE COUNTY—		
A. V. Grant, et al, Dennis 1	*	1501
P. R. Harris et al, Lewis 1	*	2273
ELECTRA—		
Apple & Brandeberry, G. B. Ancell 1	*	1777
C. H. Clark et al, Waggoner 6	10	990
The Texas Co., Waggoner 350	*	718
FOARD COUNTY—		
Clark et al, Atkins 1	*	3502
K-M-A & IOWA PARK—		
Coleman & Coppock, K. & K. 5	150	958
K. & K. 7, Lot 4	115	859
Henry Hobbs et al, Hodge 2	*	1543
Holbrook & Wood, K. & K. 1	100	860
K. & K. 16	110	858
Kimmel et al, Etheridge 2	*	525
Shappel Oil Co., K. & K. 15-A	10	1628
Vergate Oil Co., Watkins 4-D	50	863
MONTAGUE COUNTY—		
Bridwell & Heydrick, McGauhy 5..	100	1596
Roy I. Carter et al, Bouldin 3	¶3	778
C. F. Spencer & Rhodes, Bouldin 6	¶3	778

(Continued on page 112)

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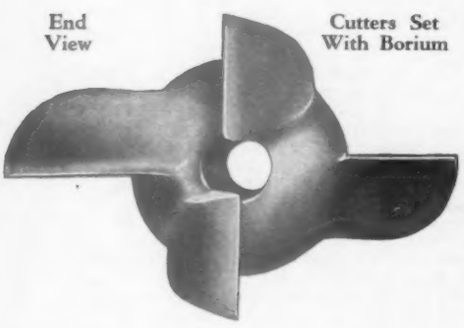

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PERMITS GRANTED FOR NEW WELLS

WEEKLY COMPARISON OF NEW WELLS

Following is a condensed table giving a comparison of permits or locations made for new wells during the past year in Kansas, Oklahoma, Arkansas, Louisiana, Texas, California and the Mountain States:

	Week ending March 24	Previous week	Total this month	Total this year	This week last year	This month 1927	Total same date 1927	Year total 1927
Arkansas	3	3	16	38	5	47	117	329
California	21	10	73	256	64	144	377	1,226
Louisiana	21	11	72	164	17	66	127	812
Kansas	24	30	86	283	20	94	365	972
Oklahoma	80	62	273	703	75	308	1,193	3,702
Texas	180	176	677	1,601	209	968	2,981	8,665
Mt. States	..	..	..	..	18	64	171	494
Totals	329	292	1,197	3,045	408	1,691	5,331	16,149

ARKANSAS

UNION COUNTY—W. R. Keever's Ezell B-3, 12-17-15, 300 ft s and 200 ft w of ne c ne se. Mellon Tr's Bullock 1, 7-18-14, 330 ft s and 330 ft w of ne c ne sw. J. O. Moore Tr's Pagan 1, 18-18-11, 125 ft n and 90 ft e of sw c ne sw.

CALIFORNIA

HUNTINGTON BEACH—Imperial Gypsum & Oil Corp., No. 2, 34-5-11.

KERN RIVER — Petroleum Securities Co., No. 13, 22-28-27, George F. Getty, Inc., Grady 6, 26-28-27; McDougal 6, 26-28-27. California Star Oil Co., No. 4-80, 22-28-27.

LONG BEACH—Edwin T. Maddox, No. 1, 28-4-12. Shell Co., Andrews 6, 20-4-12; Pickler 8, 29-4-12; Hamilton 3, 29-4-12; Cherry Hill Comm. 6, 29-4-12. South Basin Oil Co., Nakamura 2, 30-4-12. World Petroleum Corp., Signal Hill 9, 33-4-12. Richfield Oil Co., Lekas 3, 29-4-12; Booth 10, 29-4-12; Hoover 3, 19-4-12. Wilshire Long Beach 1, 20-4-12.

MIDWAY—North American Oil Cons., No. 3-A, 32-31-24. Republic Petroleum Co., No. 31, 7-32-23.

MOUNT POSO—General Pet. Corp., Glide 21-7, 21-27-28.

ROSECRANS—W. R. Preston, No. 1, 17-3-13.

SEAL BEACH — Standard Oil Co., San Gabriel 18, 3-5-12.

LOUISIANA

BOSSIER PARISH—J. R. Bahan, Shreveport, Kilgore 1, 31-23n-11w, 675 ft s and 1310 ft e of nw c. The Texas Co., Shreveport, Rose 2, 31-23n-11w, 965 ft e and 425 ft n of center. Geo. W. Wetherbee, Shreveport, G. W. Smith 2, 23-19n-11w, 150 ft n and 150 ft e of sw c sw.

CADDO PARISH — Bayou State Oil Co., Shreveport, Jolley C-1, 27-22n-15w, 150 ft n and 220 ft e of sw c nw se. Empire G. & F. Co., Shreveport, Nicholson 1, 33-17n-14w, 1320 ft n and 700 ft e of sw c. Simplex Oil Co., Inc., Shreveport, Geo. O. Baird, et al 3, 22-20n-15w, 2046 ft w and 200 ft s of ne c.

CALCASIEU PARISH—Green Oil Co., Lake Charles, Reed 1, 29-9s-11w, 63 ft s and 1150 ft e of nw c s½ ne. Gulf, Houston, Star-Vincent 45, 34-10s-12w, 372 ft s and 255 ft e of nw c sw.

CALDWELL PARISH — Moody & Seagraves, Shreveport, Caldwell Land & Timber Co. 1, 27-13n-5e, 660 ft s and 1980 ft w of ne c.

CAMERON PARISH—Yount-Lee Oil Co., Beaumont, State Land 10, 36-12s-10w, 560 ft n and 750 ft e of sw c.

IBERIA PARISH — Gulf, Houston, A. J. Broussard, et al 2, 26-11s-8e, 100 ft n and 100 ft w of se c of blk 5 in Sec 26.

OUACHITA PARISH—R. A. Keaton, Monroe, School Board 1, 16-16n-4e, 1730 ft s and 744 ft w of ne c. Southern Carbon Co., Monroe, Fee 50, 18-19n-4e, 673 ft w and 2502 ft n of se c.

RICHLAND PARISH—Ruston Drilling Co., Alexander 1, 4-16n-6e, 990 ft n and 1650 ft w of se c; Ethridge 1, 28-17n-6e, 650 ft s and 990 ft w of ne c se se; Mulhern 1, 19-16n-6e, 1980 ft n and 1980 ft w of se c.

ST. MARTIN PARISH—Rycade Oil Corp., Houston, Rycade Fee 3, 19-9s-8e, 3294 ft e and 3728 ft s of nw cor of sec.

TERREBONNE PARISH——Southern Gas Co., Inc., Houma, L. J. Barrios 1, 104-17s-17e, n 77 degrees, 36 ft e 9865.7 ft from ne c; Southdown 5, 102-17s-17e, n 55 degrees, 29 ft w, 3381.8 ft from se c.

UNION PARISH—Industrial Gas Co., Bastrop, Harris 1, 24-20n-3e, 660 ft n and 660 ft n and 660 ft w of se c. Wingfield, et al, El Dorado, Ark., Hudson 1, 7-23n-1e, 200 ft s and 200 ft w of ne c nw se.

KANSAS

BUTLER COUNTY — Sage, Fowler et al, Alberts 1, swc se se, 21-25-4e. Empire O. & R. Co., Evertson 1, ces nw ne, 17-28-7e.

CHASE COUNTY—Denman et al, Ewers 1, c nw se, 15-18s-6e.

DICKINSON COUNTY—Phillips Pet. Co., Gugler 1, sec nw, 11-14-4e.

ELK COUNTY—Smith & Ash, Hand 1, sec nw se, 21-31-9e.

GREENWOOD COUNTY—Empire O. & R. Co., Ott 8 "A", sec nw nw, 24-22-12e; Schwab 11, cnl nw se ne, 25-22-12e; Schwab 11, cnl nw se ne, 25-12-12e; Ott 4, "C", swc ne ne, 26-22-12e. Darby Pet. Co., Schwab 10, cnl se se nw, 30-22-13e. McCullough Oil Co., Roglin 2, cwl sw sw, 10-25-13e. McCready Oil Co., Gustin 1, sec sw, 34-25-13e. Hawley et al, Peterson 1, nwc ne sw, 4-26-13e. Rockhill et al, Jones 1, swc ne, 21-26-13e.

McPHERSON COUNTY—Mid-Kansas O. & G. Co., Larson 1, c ne sw, 31-18-2w. Tatloyd Oil Co., Chinberg 1, c sw nw, 32-18-2w.

MARION COUNTY—Rosenthal et al, Talchman 1, nwc sw sw, 13-17-3e.

RUSSELL COUNTY—Liggett et al, Chrysler 1, swc nw sw, 9-11-15w.

SUMNER COUNTY — DeForrest Oil Co., Meyers 1, nec se se se, 26-30-2w. Roxana Pet. Corp., Barnes 4, sec sw sw sw, 14-32-2e. Palmer & Barnsdall Oil Corp., Weinrich 5, nec nw nw nw, 23-32-2e; Weinrich 6, nwc, 23-32-2e; Weinrich 7, cwl nw nw, 23-32-2e. Hartmand & Skaer, Graves 1, sec, 7-35-1e.

OKLAHOMA

CARTER COUNTY—Boring et al, Walker 2, nwc sw se nw, 10-4s-2w.

CREEK COUNTY — Thompson & Black Boradnax 4, nwc se se n, 16-17-11e. Henry & Avers, Harris 3, csl se se, 12-17-10e. Dixie Drlg. Co., Pahcakney 1A, nec se nw, 28-18-11e. Kennedy & Horner et al Tiger 1, nec nw nw, 25-18-11e. National Ref. Co., Futreel 2, sec ne se, 1-19-9e. Burlingame & Sharp, Miller 15, cnl s½ sw nw, 13-19-8e. J. A. Swindler et al, Micco 1, sec sw sw, 7-14-10e.

GRADY COUNTY — Commerce Development Co., Pond 1, ne nw sw, 13-4n-8w. Okla. Gas Utilities Corp., Williams 2A, nec sw sw, 11-4n-8w. Okla. Gas Utilities Corp., Serrata 4, nw sw nw, 25-5n-8w.

GRANT COUNTY—Argo Oil Co., Lane 1A, nec, 27-27-3w.

HUGHES COUNTY—Bunte et al, Turner 1, nwc se, 14-8-9e.

JEFFERSON COUNTY — E. T. Daniels Black 1, nwc sw sw se, 16-7e-5w.

KAY COUNTY — Blackwell O. & G. Co., Heighley 2, c se ne, 29-25-1w. Rogers et al, Roberts 1, c ne ne, 5-26-1w. Sinclair O. & G. Co., Hall 1, sec nw, 19-27-1w. Tidal Oil Co., Cole 3, c n½ se, 18-29-1e.

LOGAN COUNTY — Roxana Pet. Corp., Sebranke 3, nwc ne, 30-19-4e; Stephens 2, nwc sw, 29-19-4w; Ross "B" 2, se sw se, 19-19-4w.

MUSKOGEE COUNTY—Mitchell Oil Co., Barnett 2, sec sw sw, 35-16-15e. P. Boyle et al, Barnett 5, c n½ se, 8-15-15e. Bryan & Emery Barnett 1, csl se ne, 8-15-15e. W. B. Pine et al, Simmons 1, nw c ne nw, 9-15-15e. C. T. Blackwood, Townsite 2, swc se ne sw, 6--14-19e. Decius & Garrett, Townsite 1, sec ne sw, 6-14-19e. W. T. Metzger, Crittenden 7, nwc sw ne se, 6-14-19e. A. Tillman et al, Cobb 1, sec ne sw sw, 6-14-19e. Towner & Witte, Townsite 1, se ne sw, 6-14-19e.; Wade 1, sec nw se nw, 6-14-19e. Walton Oil Co., Kell 2, cnl se sw, 6-14-19e. C. Grosscurth et al, Kell 1, sec ne nw, 7-14-19e. J. R. Graves et al, Flowers 4, csl se nw, 5-13-16e. Sioux Oil Co., Jordan 2, nec se se, 14-13-18e.

OSAGE COUNTY—Peters Pet. Co., 4, se nw sw, 26-25-9e. Minnehoma Oil Co., 3, cel sw, 11-26-8e. I. T. I. O. Co., 345, sw ne se, 2-25-11e.

OKMULGEE COUNTY—Elm Oil Co., A. Rentie 10, sec 13-13-14e. Billy Gene Oil Co., Monday 1A, nec se, 19-13-14e. J. L. Selby Flint 16, nwc se ne, 26-14-14e. Indep. Oil & Gas Co. & Devonian Oil Co., Wisner 8, c sw se, 7-15-13e.

PONTOTOC COUNTY—Ada Develop Co., Lloyd 1, c w½ ne, 7-3n-7e. W. C. Hughes, Gann 1, nwc se, 15-4n-7e. J. A. Hall Brydid 1, nwc se, 33-5n-5e. I. T. I. O. Co., Taylor 2, se sw se, 29-5-5e.

POTTAWATOMIE COUNTY — Magnolia Pet. Co., Fyke 1, nw sw se, 20-7-5e. T. B. Slick, Harper 1, ne nw se, 19-7-5e. Magnolia Pet. Co., Shipshowohno 1, swc ne, 19-7-5e. Shipman 3, se nw ne, 19-7-4e. Singletary 2, nw se sw, 14-7-4e. Indep. O. & G. Co., Jordan 1, sec 10-7-4e. T. B. Slick, Spangler 1, nwc, 17-7-2e.

SEMINOLE COUNTY—La. Oil Ref. Co., Reed 2, se ne ne, 18-5n-8e. Gilcrease Oil Co., Reed 2, nwc, ne, 18-5-8e; Reed 1, ne nw ne, 18-5-8e. Anderson & Pritchard Culley 1, se sw ne, 18-5-8e. The Texas Co., Hyde 5, sw ne se, 7-5-8e; Hyde 4, nw ne se, 7-5-8e. Sinclair Oil & Gas Co., Amos "C" 1, nec sw, 7-5-8e; Amos 1 "A" swc ne, 7-5-8e. Mid-Continent Pet. Corp., Fleet 10, se sw se, 7-5-8e. Mid-Continent Pet. Corp., Fleet 9, se nw se, 7-5-8e; Fleet 8, ne sw se, 7-5-8e. Fleet 7, nw se se, 7-5-8e; Fleet 6, nwc se, 7-5-8e. Carter Oil Co., Spillman 1, se sw sw, 7-6-8e. Sands Pet. Co., Harrison 1, sw nw se, 4-7-7e. Fish 1, nwc sw, 12-7-6e. T. B. Slick Williams 1, ne se ne, 15-7-6e.

STEPHENS COUNTY — Geo. Pace et al, Allen 3, nwc ne nw ne, 3-2s-8w. Pace et al, Wilson 1, nec nw, 12-2s-8w. Wirt Franklin Oil Corp., Fobb 1, nec se, 12-2s-8w. C. R. Smith, Miller 1, sec ne, 25-1s-4w. Snodgrass Oil Co., Malernee 4, nwc ne ne nw, 34-1s-8w. Medlin et al, Burk 2, swc nw nw ne, 34-1s-8w. Martin & Smythe, c ne se, 20-2n-5w.

TULSA COUNTY—Short & Maness et al, Stanwaite 1A, ne se nw, 15-18-12e. Glidden Oil Corp., Riverbed 3, swc ne nw se, 15-19-11e; Riverbed 2, cwl nw se, 15-19-11e. Caldwell & Page Hodge 1, swc se se, 10-19-11e.

TEXAS

ARCHER COUNTY—J. R. Elliott, Wichita Falls, Wolfe 1, V. H. Finch sur, 923 ft from e and 150 ft from n line. Petroleum Prod. Co., Wichita Falls, Parrish 2, blk 232, Amer. Trib. sur, 150 ft from s and e lines; Fallon 1, blk 251, Amer. Trib. sur, 150 ft from s and w lines. Crude Prod. Corp., Wichita Falls, Prideaux 4, A. Rohus sur, 300 ft from n and 150 ft from w line. Johnson & Fraser, Wichita

FOR USE ON A
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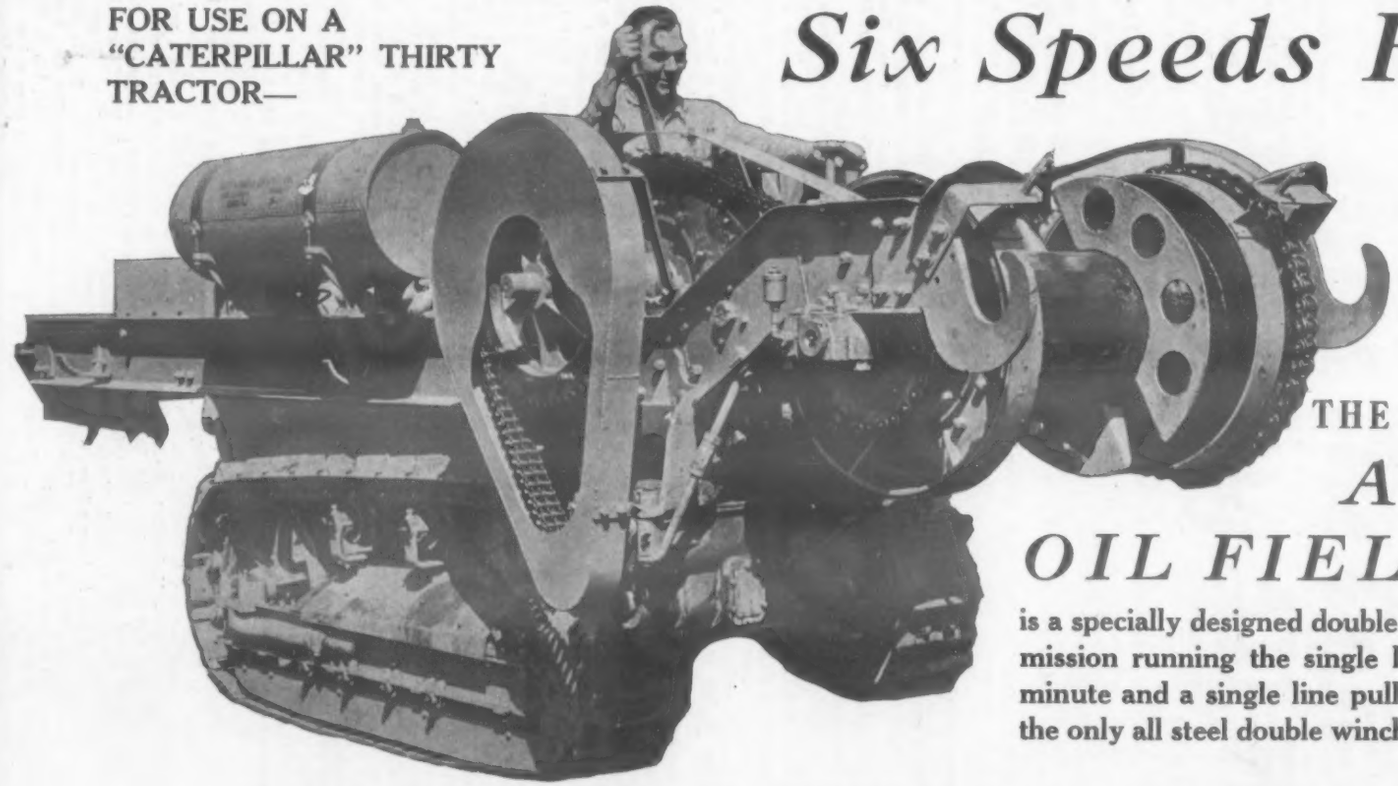
TRACTOR—

Six Speeds Forward



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ALLSTEEL OIL FIELD WINCH

is a specially designed double winch with an individual transmission running the single line speed up to 1000 feet per minute and a single line pull up to 20,600 pounds . . . it is the only all steel double winch free release drum in the world.

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The dependability of a "Caterpillar" Thirty Tractor (Best 30), long known for its quality of material and long life in hard usage without excessive repairs, is a matter of history—and now comes the Cardwell-Keltner All-Steel Winch, to be mounted on a "Caterpillar" Thirty for pulling rods and tubing from wells that are surrounded with soft slush ponds, mud holes or sandy soil conditions without the usual grief that accompanies a wheel type tractor in the pulling of rods and tubing. The "Caterpillar" Thirty is a large power unit, a tractor delivering a maximum of 33 horse power on the drawbar which furnishes ample motor power for the Cardwell-Keltner six-speed winch, giving a range of line speeds and ample power for any depth well, without the racing of the motor. Quality has been the objective in the construction of this winch and nothing but steel castings upon a frame of steel channel has been used, the sprockets and bearings being mounted on 3½% nickel steel skafts. All bearings are Hyatt dirt proofed, eliminating, in a large measure, repairs and breakdowns, and through these, loss of production. ALL these qualities are furnished at a lower cost by 30% than any other winch of equal capacity. Cable, write or wire.

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Cable Address: "Cardkelt"
Wichita, Kansas, U. S. A.

There is a "Caterpillar" dealer in every country on the globe—ask for his name.

Say you saw it in The OIL WEEKLY

Falls, Wilson 3, blk 26, Amer. Trib. sur, 300 ft w of 1. Panhandle Ref. Co., Wichita Falls, Farmer 4B, J. Pointevent sur, 300 ft s of 3. L. P. Hammond, Wichita Falls, Wilson 1, blk 108, Amer. Trib. sur, 150 ft from s and w lines. Empire G. and F. Co., Wichita Falls, Parkey 1A, S 11, blk 3, H&TC sur, 150 ft from n and w lines. Wilson & Humble O. & R. Co., Wichita Falls, Wilson 1, blk 107, Amer. Trib. sur, 1661 ft from n and 150 ft from w line. Frank Hutcheson, Archer City, Hutcheson 1, blk 123, J. Ostane sur, 450 ft from n and 250 ft from w line. Fain-McGaha Oil Corp., Wichita Falls, Wilson C 3, blk 27, G. C. S. L. sur, nw corner. J. P. Rayzor, Wichita Falls, Turbeville 1, blk 152, R. Carson sur, 150 ft from s and e lines. Bridwell Oil Co., Wichita Falls, Holosek 1, W. E. Probert sur, 150 ft from s and e lines. J. A. Minton, Wichita Falls, Dycus 1, G. W. Barnett sur, 870 ft from e and 150 ft from s lines. Panhandle Ref. Co. & Johnson, Wichita Falls, Carey 2, 1856, TE&L sur, 150 ft from n and 450 ft from w line.

BROWN COUNTY — Hammon & Garrett, Wichita Falls, Childress 1, No. 10, HT&B sur, 150 ft from n and e lines. Geo. Winkler, Brownwood, Black 1, B. C. S. L., nw corner. Smi-Lock Pet. Co., Mexia, Keeler 1, No. 624, J. Kinney sur, 424 ft from n and 520 ft from w line. Lamb & Supply Oil Prod. Co., Brownwood, Boysen 3, Arhenback sur, 453 ft from e and 150 ft from s line; 4, 150 ft from s and e lines. A. E. Metts, Bangs, Childress 2, D. Short sur, 150 ft from n and e lines. W. H. Peckham et al, Wichita Falls, Tauer 1, G. P. Mitcham sur, 150 ft from n and w lines. E. L. Britt, Brownwood, Parks 1, Thom sur, 700 ft from nw and 400 ft from sw line. O. P. Bush et al, Brownwood, Harris 1, O. Dalton sur, nw corner. E. M. Curry, Rising Star, Chambers 2, G. Logan sur, 150 ft from e and 750 ft from n line. Henshaw Oil Corp., San Angelo, Bush 3, No. 624, J. Kinney sur, 150 ft from n and 300 ft from e line. E. R. Marts, Dallas, Winn 1, S 138, 450 ft from sw and 1600 ft from nw line.

BEXAR COUNTY—N. A. Saigh, San Antonio, Frees 7, S. McCulloch, 550 ft se of 5. Medio Oil Co., San Antonio, Cohen 8, No. 4, M. F. Rodriguez sur, 425 ft nw of 4.

BRAZORIA COUNTY—Rycade Oil Corp., Houston, Wisdom 25, H. N. Cleveland, 400 ft from e and 588 ft from s lines.

CALLAHAN COUNTY—L. M. York, Stamford, Kile 1, 2280, TE&L sur, 150 ft from n and w lines. Claude Hightower, Mineral Wells, Cottle 1, 3196, TE&L sur, 450 ft from s and e lines. C & B Oil Co., Baird, Allen 1, 3197, TE&L sur, 150 ft from n and e lines. F. E. Shaheen, Cisco, Diller 1, S 52, L. A. L. sur, 150 ft from w and 545 ft from s line. E. V. Richard, Cisco, Harris 1, S 42, D&D Asy sur, 150 ft from s and e lines.

COLEMAN COUNTY—Selby O. & G. Co., Tulsa, Doggin 1, J. A. Wright, 150 ft from s and 450 ft from e line. Shaw, Fox & Adams, Burkett, Watson 10, No. 163, W. M. Mason sur, 1350 ft from e and 450 ft from s line. Amerada Pet. Corp., Fort Worth, Knox 1, M. D Trevino sur, 300 ft from n and w lines.

CALDWELL COUNTY—Texas Co., Houston, O. T. Moore 1, J. Gilbert sur, 150 ft from n and w lines. Osteen 3, W. C. Swearingen sur, 763 ft ne of 2;4, 150 ft from s and e lines; Osteen 5, W. C. Swearingen sur, 150 ft from n and e lines. Sun Oil Co., Dallas, Talley 4, W. C. Swearingen sur, 300 ft ne of 2. L. P. Schawe, Maxwell, Schawe 1, T. Maxwell sur, 300 ft from s and w lines.

CHAMBERS COUNTY — S. R. Williams, Mt. Belvieu, Williams 1, Wm. Bloodgood sur, 750 ft from s and e lines.

COOKE COUNTY—Right-of-Way Oil Co., Fort Worth, MK&T 4, blk 89, T. Scott sur, 574 ft n of 2B. W. J. Green, Wichita Falls, Campbell 1, BBB&C sur, 150 ft from n and w lines. Fain-Gaha Oil Corp., Wichita Falls, Chaffin 2, E. Reed sur, 300 ft n of 1.

CROCKETT COUNTY — W. R. Simmons, Fort Worth, Texas 1, S 1, blk 14, w central part of lease.

EASTLAND COUNTY—J. M. Knox et al, Eastland, Lightfoot 1, S 3, blk 6, E. T. Ry. sur, 250 ft from w and 200 ft from s line. Charter Oil Co., Brownwood, Tomlinson 1, S 446, S. P. Ry. sur, 600 ft from n and w lines. Southwestern Pet. Corp., Ranger, Reagan 1, blk 4, H&TC sur, 310 ft from n and 150 ft from w line.

FORT BEND COUNTY — Otis Meredith, Houston, Overley 1, E. Drew sur, 60 ft from e and 50 ft from s line. Navarro Oil Co., Houston, Robinson 4, H. Shropshire sur, 261 ft from e and 231 ft from s line. E. E. Watts, Houston, Scott 1, E. Drew sur, 1050 ft from e and 150 ft from s line. Gulf, Houston, Luscher 12, T. Hobermaker sur, 50 ft from n and 535 ft from w line.

FISHER COUNTY—Sinclair O. & G. Co., Fort Worth, Steele 1, S 72, blk 1, H&TC sur, 330 ft from n and 940 ft from e line.

GRAY COUNTY — Scott Drilling Co. & Travis, Pampa, Chapman 1, S 70, blk 23, H&GN sur, 330 ft from w and 300 ft from s lines. Magnolia, Dallas, Harrah 1, S 150, blk 3, I&GN sur, 330 ft from n and w lines. Hickory O. & G. Corp., Fort Worth, Sullivan 1, S 1, blk 1, ACH&B sur, 330 ft from s and e lines.

GONZALES COUNTY—Texas Co., Houston, Dumman 1, A. Zumwalt sur, 100 ft from s and w line.

HARRIS COUNTY—T. W. Horn, Houston, Hermann 31, J. B. Jones, 75 ft from n and 740 ft from w line. Woodward & Lee, Houston, Settegast 4, J. Kopman sur, 200 ft n of 3. C. A. Adams, Humle,, Hirsch 2, blk 10, J. B. Jones sur, ne corner.

HUTCHINSON COUNTY—L. W. Timms, Amarillo, Jordan 1, S 124, blk 4, I&GN sur, ne c.

HARDIN COUNTY—Minor Oil Co., Beaumont, Fee 83, S. Jackson sur, 381 ft from s and 30 ft from w line. Gilbert Oil Co., Beaumont, Fee 102, S. Jackson sur, 110 ft from e and 540 ft from s line. Gulf, Houston, BB&C 26, BBB&C sur, 325 ft w of 25.

HARDEMAN COUNTY—Texas Co., Houston, Clisbee 1, M. Reeves sur, 1092 ft w of center of e line.

JACK COUNTY — Duffield & Howard Oil Co., Tulsa, Stewart 1, 2783, TE&L sur, 1410 ft from w and 850 ft from n line. Emory W. Walton, Jacksboro, Gillispie 1, W. W. Brown sur, 150 ft from s and w lines.

JONES COUNTY—Midwest Explo. Co., Amarillo, Phillips 1, S 16, blk 19, T&P sur, sw corner.

JEFFERSON COUNTY — Yount-Lee Oil Co., Beaumont, McFaddin 63, P. Humphreys sur, 340 ft from e and 1160 ft from n line; Gladys 55, J. A. Veatch sur, blk 57, 93 ft from e and 170 ft from s line.

JIM HOGG COUNTY — H. M. Lightfoot, San Antonio, Palacios 1, S 287, blk 13, 150 ft from n and w lines. Moody Corp., Houston, Palacios 13, blk 14, Randado sur, 150 ft from n and e lines.

LIBERTY COUNTY—Texas Co., Houston, Green 3, M. G. White sur, 1242 ft from e and 50 ft from s line; 2, 100 ft w of 3; Pickett 1, M. G. White sur, 50 ft from n and e lines.

MONTAGUE COUNTY — Continental Oil Co., Wichita Falls, Salmon B B2, F. Robertson sur, 150 ft from n and 200 ft from w line. Manhattan Oil Co., Kansas City, Hickman 1, J. Diaz sur, 150 ft s of center of n line.

MATAGORDA COUNTY — Gulf, Houston, Vineyard 1, Kingston & Powell sur, 200 ft from ne and 800 ft from sw line.

MILAM COUNTY—W. A. Jones, Minertal, Casparis 1B. T. J. Chambers sur, 150 ft from s and ne lines.

McCULLOCH COUNTY—Fentress & Jones, Waco, Austin 1, S 283, H&TC sur, 1500 ft from n and 150 ft from e line.

NUECES COUNTY — Texas Co., Houston, Texas State 1, No. 689, 150 ft from w and 425 ft from s line.

PANOLA COUNTY — Nat. G. & F. Corp., Shreveport, La., Adams 3, E. Bracken sur; 4, sw corner. M. H. Smith, Shreveport, La., Agurs 1, J. Womack sur, sw corner.

PALO PINTO COUNTY—Gordon & Gohlson, Ranger, McDonald 1, S 38, blk 1, T&P sur, 2640 ft from n and 660 ft from w line.

PECOS COUNTY — Kirby Pet. Co., San Angelo, University 1, S 36, blk 24, Univ. Lands sur, 330 ft from n and e lines. Mid-Kansas O. & G. Co., Tulsa, Yates A 17, I. G. Yates sur, 2638 ft from w and 250 ft from s line. California Co., Colorado, Smith 1, S 26, blk 194, GC&SF sur, 1650 ft from w and s line.

REFUGIO COUNTY — Saxet Co., Corpus Christi, Heard A6, Refugio sur, 210 ft from n and 540 ft from w line.

REEVES COUNTY — D. P. Davis, Fort Worth, Bell 1, S 20, blk 2, H&GN sur, 300 ft from n and w lines.

STONEWALL COUNTY — Henshaw Oil Corp., San Angelo, Moore 1, S 136, blk 1, H&TC sur, 150 ft e of center of w line.

SHACKLEFORD COUNTY—Crabb & McNeil Bros., Cross Plains, Albany 1, S 10, blk 11, T&P sur, 155 ft from n and 1645 ft from e line. Pennok Oil Corp., Breckenridge, McLemore 1, S 2A, HT&B sur, 150 ft from s and w lines. Hermosa Oil Corp., Fort Worth, Davis 1, S 19, blk 13, T&P sur center. J. G. Catlett, Tulsa, Alexander 1, 580, TE&L sur, 960 ft from nw and 200 ft from ne line. E. M. Powell et al, Moran, Broyles 1, S 16, L. A. L. sur, 450 ft from w and 150 ft from s line; Kendrick 1, S 19, Blind sur, 150 ft from e and 450 ft from s line. L. B. Tannehill, Albany, Matthews 2, S 34, E. T. Ry. sur, 150 ft from s and w lines. Roeser & Pendleton, Inc., Fort Worth, Cook A2, S 62, E. T. Ry. sur 417 ft from n and 499 ft from e line. A. C. Walker, Albany, Huskey 2, 529, TE&L sur, 300 ft sw of 1. L. B. Tannehill, Albany, Matthews 1, S 27, E. T. Ry. sur, 150 ft from s and w lines; Matthews 1, S 33, E. T. Ry sur, 150 ft from n and e lines. Roeser & Pendleton, Inc., Fort Worth, Cook A2, S 62, E. T. Ry. sur, 419 ft from n and 799 ft from e line.

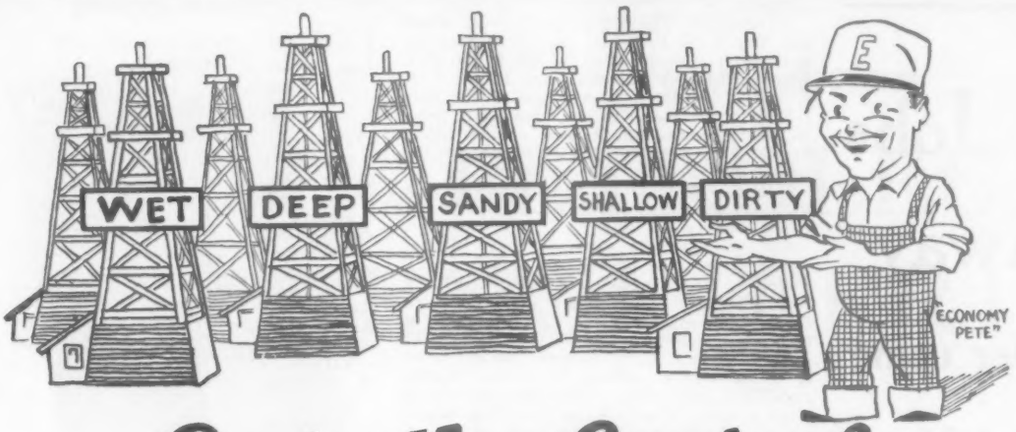
SAN PATRICIO COUNTY — Alamo Drlg. Co., San Antonio, Hunter 1, Seguin sur, 150 ft from n and 400 ft from e line. Houston Gulf Gas Co., Houston, Welder 2, Calixto sur, e central part of lease.

STEPHENS COUNTY — Thompson-Lawton, et al, Ranger, Langford 1, S 52, blk 6, T&P sur, 320 ft from n and 1320 ft from w line.

WICHITA COUNTY—R. P. Dorian, Wichita Falls, Morgan 4, blk 818 E. Stanley sur, sw corner. J. E. Dunaway et al, Wichita Falls, Waggoner 7, S 33, blk 5, H&TC sur, 300 ft w of 5. Coppock & Coleman, Iowa Park, Kemp & Kempner 6, blk 82, HT&B sur, 450 ft from e and 150 ft from s line. W. B. Omohundro, Wichita Falls, Chilson 2, blk 7, D. C. S. L., 326 ft s of 1. W. D. McClure & Sons, Iowa Park, McClure 3, S 5, blk 7, GC&SF sur, 50 ft w of 2. Ryan Consolidated Pet. Corp., Bartlesville, Okla., Nance 92, S. O. Fowler sur, 360 ft nw of 59.

WINKLER COUNTY—Southern Crude Oil Purchasing Co., Shreveport, La., I. Hendrick 3, S 42, blk B5, School sur, 330 ft from e and 990 ft from s line; 4, 330 ft from e and 1650 ft from s line; I. Hendrick 4, S 30, 2310 ft from n and 330 ft from e line; I. Hendrick 2, S 42, 1650 ft from n and 330 ft from e line; 3, 990 ft from n and 330 ft from e line; I Hendrick 5, S 44, 330 ft from s and e lines; I Hendrick 4, S 42, blk 26, 330 ft from n and e lines; I. Hendrick 3, S 44, blk 26, 330 ft from e and 1650 ft from s line; 4, 330 ft from e and 990 ft from s line; I Hendrick 2, S 41, 990 ft from n and 330 ft from e line; I. Hendrick 3, S 44, 1650 ft from n and 330 ft from e line; 4, 990 ft from n and 330 ft from e line; 5, 330 ft from n and e lines.;I. Hendrick 8, S 41, 330 ft from s and e lines; 7, 660 ft n of 8; 6, 1650 ft from s and 330 ft from e line; 5, 2310 ft from s and 330 ft from e line; 5, 660 ft s of 3; 3, 660 ft s of 2. Roxana Pet. Corp., South Bend, I. Hendrick B4, S 29, blk B5, 330 ft from n and 1320 ft from e line. Republic Prod. Co., San Angelo, T. G. Hendrick 2B, S 42, blk B 5, School sur, 660 ft n of 1. Roxana, South Bend, I. Hendricks B5, S 29, blk B5, School sur, 1320 ft from e and 330 ft from s line. Humble O. R. Co., Wichita Falls, T. G. Hendrick 13, S 34, blk B5, School sur, 330 ft from s and 660 ft w of 2; Hendrick 12, 660 ft e of 5. Murchison Oil Co., Wichita Falls, Hendrick H1 S33, blk 26, center. Southern Crude Oil, Purchasing Co., Shreveport, La., I. Hendrick 3, S 4, blk B12, 330 ft from n and 1320 ft from e line; I Hendrick 1, S 33, blk 25, 330 ft from s and 2310 ft from e line; 2, 2310 ft from e and 990 ft from s line; 3, 330 ft from center of w line.

WILBARGER COUNTY — Roxana, South Bend, Miller 2, S 30, blk 9, H&TC sur, 516 ft from w and 150 ft from s line. Texas Co., Wichita Falls, Waggoner B8, S 17, blk 4, H&TC 300 ft w of 5. Phillips Pet. Co., Bartlesville, Okla., Waggoner L7, S 45, blk 4, H&TC sur, 300 ft from n and 316 ft from w line. Fain-McGaha Oil Corp., Wichita Falls, Waggoner



Cuts the Cost of Pumping All Wells

NUMEROUS tests are being conducted throughout the Mid-Continent fields with tremendous success. The many hundreds of California Companies who use the EPCO PUMP adopted it because **it does cut pumping costs.** ▾▾▾

HOW?

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Field records show that it has eliminated 99 out of 100 tubing jobs ▾▾▾ and with them the waste of oil, the non-productive hours, the waste of fuel, power and labor ▾▾▾ every oil man knows what this means in annual saving.

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Our records show that rod breakage is tremendously reduced, often eliminated. The EPCO PUMP drops freely and lifts less load, as proven by numerous dynamometer tests in the field. EPCO PUMPS are operating perfectly at depths up to **5700 feet!** Field records also show that EPCO will pump all the oil the well produces, without excessive cutting and churning. ▾▾▾

It is not surprising that our factory has been running day and night keeping up with repeat orders.

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These are just a few of the features. The EPCO PUMP is the biggest advancement in production methods in recent years.

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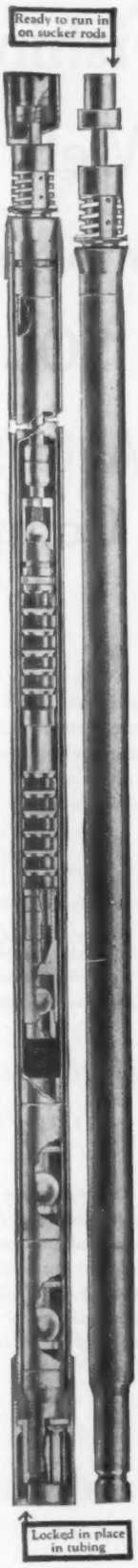

Fishing Jobs Melt Away

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SOL-RAY

Acid Fishing Compound

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Works at any depth, loosening the formations and eating away the tools themselves if allowed to remain indefinitely; however, when proper instructions are followed it will not injure equipment.

While comparatively new in use SOL-RAY is being successfully used by the largest producers in both the United States and foreign fields. Long delays and the great expense of the old time fishing job are eliminated by using SOL-RAY.

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Manuufacturers of Ward's Boiler Scale Remover, dissolves the hardest scale and prevents it from forming. Quickest for cement jobs, Solin for cleaning out parafine. Our engineers will assist and instruct operators and field men in the uses of Ward Products.

Ward Chemical Co.

Chemicals for The Oil Industry

TULSA, OKLAHOMA

S 1, S 24, blk 4, H&TC sur, 150 ft from s and w lines.

WHARTON COUNTY—Geo. Hyde, Houston, Bay 4, S. F. Austin sur, 50 ft from nw and 200 ft from ne line; 5, 150 ft sw of 1. Union Sulphur Co., Sulphur, La., Looper 1, S. F. Austin sur, 350 ft from w and 2000 ft from s line. Weed-Gayle Oil Co., Beaumont, Feltz, 18, S. F. Austin, 250 ft from ne and 180 ft from se line; L. Bay 14, S. F. Austin sur, 510 ft from ne and 600 ft from nw line.

WHEELER COUNTY — Pendleton & Vaughn, Shamrock, Ackley 1, S 4, blk 27, H&GN sur, center.

YOUNG COUNTY — Texas Unity Oil Co., Dallas, Gragg 2, A. Rohus sur, 1000 ft s of 1. Fuller & Morrison, Wichita Falls, Groner 1, 2701, TE&L sur, 150 ft from n and w lines. D. L. Wolf, Olney, Lowe 1A, TE&L sur, 150 ft from n and w lines. Shappell Oil Co., Wichita Falls, Johnson 3, E. W. Sargent, 300 ft e of 1; 2, 300 ft n of 1. Allday Oil Corp., Wichita Falls, McKinley 4, 1489, TE&L sur, 450 ft from s and e lines. Cunningham, Pennell & Brachten, Loving, Boone 2, BBB&C sur, 300 ft e of 1. C. W. Jetter, Wichita Falls, Garvey 2, 1857, TE&L sur, 150 ft s of center of n line. Riggs & Oliphant, Graham, McKinley 1, 1489, TE&L sur, se corner. H. L. Tidwell, Graham, Costello 1, J. M. Johnson sur, 300 ft from e and 900 ft from s line. Hodges & Hawthorne, Wichita Falls, Tucker 1, 180, TE&L sur, 1250 ft from w and 150 ft from s line. Madden & Hunt, Olney, Hunt 1, 240, TE&L sur, 1183 ft from w and 750 ft from e line. Wooten & Reed, Graham, Crossland 1, W. A. Nicholson sur, 150 ft from n and e lines. Riggs & Oliphant, Graham, McKinley 2, 1489, TE&L sur, 150 ft from s and e lines. Kleiner, West & H-Y Oil Co., Cisco, Langston 4, 1490, TE&L sur, 150 ft from s and e lines.

ZAVALLA COUNTY—J. G. Pundt, San Antonio, West & Fuentes sur, sw corner.

ZAPATA COUNTY—W. R. Duke, Wichita Falls, Martinez 1B, blk 17, W. R. Duke sur, 150 ft from s and w lines; Martinez 1A, blk 24, W. R. Duke sur, 150 ft from n and e lines; 2A, 200 ft se of 1; 3A, 200 ft se of 2; 4A, 200 ft se of 3; 5A, 200 ft se of 4; 6A, 200 ft se of 5; 7A, 200 ft se of 6.

Gorman Field Increases in Drilling Activity

Tulsa—The Gorham field opened by Stearns & Streeter early this year in southwestern Russell County, is undergoing an increase in activity following a period of about two months of acreage blocking. Twelve tests were active there last week, located around the Mermis 1, in the southwest of the northwest of the southwest of Section 33-13s-15w, which is pumping between 500-700 barrels with gradual fluctuations from day to day.

This field, which is located approximately eight miles south of the Russell field, opened in 1923, is expected to make good steady production, although nothing large is looked for. Shallow production in Russell County heretofore has never shown big results, but the yield has been steady and profitable.

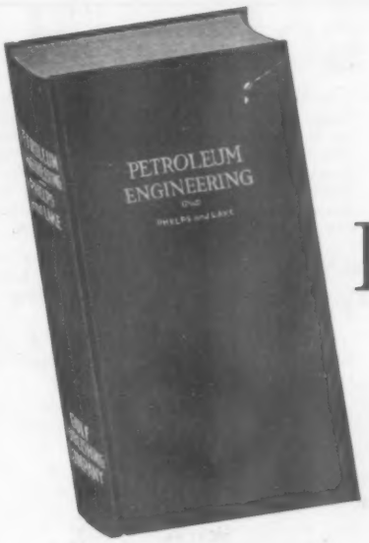
An added interest was brought to the Lost Springs field of Marion County, Kansas, last week with the finding of oil at a wildcat location several miles east, in Morris County. Graham et al's Nelson 1, in the northeast corner of the southwest of Section 30-17-5, had 500 feet of oil standing in the hole from chat at 2296-2359 feet. Lost Springs production is coming from chat, which ordinarily is found lower than in this location.

This Morris County strike, if proven up for profitable production, is due to start a general campaign of lease blocking in the vicinity, and some shallow wildcat testing.

COMPLETIONS

(Continued from page 106)

Company, Well and Location	Initial Production Bbls.	Depth
WILBARGER COUNTY—		
Boller et al, Waggoner 1	*	2490
Burton & Humble O&R Co., Waggoner 1	*	2609
Golding-Cochran et al., Waggoner 1-D	250	2390
Phillips Pet. Co., Waggoner 2-O	105	2367
Waggoner 18-NN	30	2589
Waggoner 23-QQ	40	1924
The Texas Co., Waggoner 6-B	140	2434
Waggoner 1-E	700	2396
Tower & McKana, Waggoner 2	400	2320
YOUNG COUNTY—		
R. I. Carter & Allday Oil Corp., McKinley 3	60	534
McKinley 4	85	537
Fisher & Gilliland, Carter 1	*	1275
Fuller & Morrisey, Groner 1	*	700
Kessler & Logan, Knox 1	*	1010
Kleiner et al, Langston 1-A	7	581
Panhandle et al, Pitman 1-A	*	745
Pennell Oil Co. et al, Boone 3	160	525
Riggs et al, McKinley 2	10	532
Shappel Oil Co., Johnson 2	40	524
Johnson 3	50	535
T. P. Coal & O. Co., W. P. Stinson 1	*	4640
TEXAS PANHANDLE		
CARSON COUNTY—		
Empire G&F Co., Texas Co. Fee 1-A	¶49	2518
GRAY COUNTY—		
Danciger O&R Co., W. Jackson 3	†	2800
W. Jackson 10	2200	3027
M. J. Delaney et al, Jackson 3	*	3018
Empire Gas & Fuel Co., Bender 1	275	3300
WHEELER COUNTY—		
Sun Oil Co., G. Krc 1	¶55	2025
WEST TEXAS		
CRANE COUNTY—		
Gulf Prod. Co., McElroy 48	120	2864
HOWARD COUNTY—		
F-H-E Oil Co. et al, Roberts 1-E	20	1326
PECOS COUNTY—		
Gulf Prod. Co., I. G. Yates 8	180	1255
Mid-Kansas-Transcontinental, Yates 22-B	20,000	1285
WINKLER COUNTY—		
Gulf Prod. Co., Hendrick 8	†	2610
Murchison Oil Co. & Cranfill Bros., Hendrick 4-B	500	3087
Maxwell & Turman, Hendrick 4	700	3033
Southern Crude & Dixie Oil Co., Hendrick 3-F-T-67	950	3050
Hendrick 4-F-T-67	800	3035
CENTRAL WEST TEXAS		
BROWN COUNTY—		
E. F. Aldrich et al, Stanley 1	*	525
Clark-Buffalo Oil Co., Brown Co. Fee 4	10	1096
Brown Co. Fee 5	*	1202
Brown Co. Fee 6	100	1093
Gilman & McMurray, Hickman 4	*	1290
Hoffman & Page, Smith 1	*	1452
C. F. Kelsey et al, George 1	*	1285
Pandem Oil Corp., Hutton 5	40	1175
Hutton 6	30	1125
Phillips Pet. Co., Hickman 10	45	1266
M. L. Richards et al, Curry 4	50	1115
Hutton 3	*	1166
Roeser-Pendleton, Inc., Hill 1	10	1305
J. L. Smith et al, Brown 1	*	1300
CALLAHAN COUNTY—		
Manhattan Oil Co., Johnson 1	*	1300
H. M. Pardee et al, Alexander 1	*	1005
COLEMAN COUNTY—		
Canary et al, Morris 1	¶5	2264
EASTLAND COUNTY—		
Adamson & Bearman, Rosenquest 4	*	1789
Wylie Harbin et al, Webb 1	*	1258
Lone Star Gas Co., Anderson 3	¶2¼	3190
McLester Oil Co. & States Oil Corp., Thorp 1-B	80	3675
T. P. Coal & Oil Co., Van Norman Fee 2	*	3556
SHACKELFORD COUNTY—		
Gilman & McMurray, Reynolds 1	†	800
STEPHENS COUNTY—		
Prairie O&G Co., Proctor 2	*	4465
Schimmel Prod. Co., Talley 1	10	1865
J. L. Thompson et al, Cook 1	*	3650



New Edition

PETROLEUM ENGINEERING

by

PHELPS AND LAKE

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WILDCATS FROM ALL SECTIONS

MOUNTAIN STATES

NEW MEXICO

CHAVES — Buffalo-Roswell, 1, 24-11-27, dr 4290 ft. McQuigg Bros., Neis 1, 7-5w-29e, standing 1525 ft. Berrendo O. & G. Co., Roswell 1, 5-10-27, dr 700 ft. Manhattan Oil Co., Arena 1, 18-13-31e, dr 3470 ft.

CURRY—Hasson Pet. Co., Laird 1, 22-8s-36, spd and sd. Clovis O. & G. Co., Hoskinson 1, 21-3n-36, sd 4010 ft.

GUADALUPE—Hanchett Oil Co., Rutherford 1, 24-8-24, fsh 4300 ft. Union Pet. Co., McMullen 1, 24-25-16, sd 235 ft. Navajo Oil Co., Goard 1, 10-31-7, standing cmtd 2538 ft.

LEA—Midwest Ref. Co., State 1, 9-19s-38e, dr 2800 ft. Marland Oil Co., Eaves 1, 19-26-37, dr 2600 ft. Marland Oil Co., Seideman 1, 4-25-36e, rigged. Marland Oil Co., Roberts 1, 20-23s-35e, spd 50 ft. Empire Gas & Fuel Co., State 1, 8-21s35e, mvg in material.

McKINLEY—Smart & Reid, 7-17-9, rig. Inland Oil Corp., 22-18-10, dr 1207 ft. S. Dysart 1, 21-14-9, sd 1650 ft. Jenkins Oil Co., 1, 1-16n-9w, ur 1375 ft. Williams et al, 30-18-8w, standing 1795 ft Reliance Oil Co., Valentine 1, 16-17-9, dr 1265 ft.

QUAY—Gibson Oil Corp. 1, 25-8-32, prep to deepen.

SAN JUAN—Continental Oil Co., Munoz 17, dr 4672 ft. Kansas-Colorado Oil Co., Atterberry 1, 23-31-11, fsh 4580 ft. T. C. N. Oil Co., Lanier 1, 9-29-11, sd 547 ft. Huntington Pa k Oil Co., 29-30-9, dr 4580 ft. Nollsch et al, Mullen 1, 31-29n-11, dr 240 ft. Fidelity Oil Co., Abrams 2, 23-29-11, dr 667 ft. Hue fano Oil Co., Wiltbank 1, 25-29-11, standing 800 ft. Union Oil & Mining Co., Pine 2, 8-29-9, dr 4100 ft. San Juan Pet. Corp., 1, 9-29n-13w, prep to ur 6⅝-in. 2890 ft. A. Johnson, Trustee 1, 34-29-11w, completed gas well 2092 ft. Poole & Peebles, Lawson 1, 9-30n-11w, crooked hole 700 ft. Co-Ne-Mo 1, 28-29-11, spd 120 ft. Kirtland Dr. Co., Hunt 1, 10-29-15, dr 657 ft.

SAN MIGUEL—E. Adams etal, Deason 1, 14-15n-16e, co 1155 ft.

SOCORRO—Abo Oil Co., 1A, 14-3s-6e, set 12½-in at 600 ft and sd.

TORRANCE—Duran Dome Oil Co., 1, 31-2-14, dr 1600 ft. F. G. Wilson, Trustee, Pace 1, 12-6n-27, stnding 2215 ft. Bluhall O. & G. Co., 20-6n-10e, co, td 854 ft. San Juan Coal & Oil Co., Randall 2, 26-6n-10e, repairing, td 5160 ft.

VALENCIA — Acme Oil Co., 26-6-3, dr 2364 ft.

COLORADO

ARCHULETA — Kansas-Colorado Oil Co., 17-34-2w, sd 1300 ft.

BACA—Phillips-Jones 1, 26-34-48w, sd 1745 ft. Marland Oil Co., Table Mesa 1, 8-30s-50w, mvg in rig.

BOULDER—Left Hand Oil Co., Prechtl 1, 34-3n-70, cas trouble. Essok Oil Co., Martin 1, 5-1s-70, will dr deeper, td 5225 ft.

EL PASO—Grand Union Oil Co., John Jr. 2, 19-17s-67w, sd 775 ft.

ELBERT—Botts, Likkick et al, se 1-8s-59, dr below 600 ft.

HUERFANO—Kinney-Coastal Co., Pine 1, 24-26s-68, to abn 2175 ft.

JACKSON—North Park Oil Co., Goettler 1, 9-6n-82w, co 506 ft.

JEFFERSON—Woods et al, 1, 30-3s-69, dr 470 ft.

LAS ANIMAS — Reiter-Foster & Phillips Pet., 23-29s-56, dr 1500 ft.

LA PLATA—East Long Beach Oil Co., Aspaas 1, 10-34n-11w, sd 3200 ft. Detroit Oil Assn., Olbert 1, 9-35-12w, sd 1610 ft.

LOGAN — Northeastern Colorado Oil Co., State 1, 36-8n-55w, standing 5592 ft.

MESA—Eureka Oil Co., Holly 2, 24-1s-1e, dr 900 ft.

MOFFAT—Ohio Oil Co., Kuykendall 1, 22-21n-11w, sd for the winter. Reiter-Foster Oil Co., State 1, 16-12-100, sd 2240 ft. Yarg Producing & Refining So., 205, 26-4n-92w, dr out cmt 3520 ft. Alliance Oil Co., Milliken 1, 14-4n-92w, dr 1725 ft.

MONTEZUMA—Coon & Cotton, Hall 1, 9-35n-13w, dr 1445 ft.

MONTROSE—Indian Pet. Corp., Gilmore 1, 4-45-16w, sd 4210 ft.

RIO BLANCO—Texas Prod. Co., Freeman 1, 27-3-94, dr 5490 ft. Argo Oil Co., sw 9-2s-96w, stdg, ready to spud.

ROUTT—Great Western Oil Co., State 1, 17-60n-56w, stdg 1700 ft.

WELD—Platte Valley Pet. Corp., Patterson 1, 24-6n-61w, dr 3800 ft.

MONTANA

BIG HORN—Selig Oil Co., 1, se 21-6s-35, sd 865 ft.

CARBON—Ohio Oil Co., Northern Pacific 1, 11-7s-21e, dr 4110 ft. Atlantic Oil Co., 3, 20-7s-24e, dr below 1060 ft.

CASCADE—Lone Star, McLean 1, 12-21n-3w, sd 100 ft.

CHOTEAU—Geraldine O. & G. Co., sw ne 1-21-11e, rigged.

CUSTER—Montana Belle, 28-8-45, prep to resume.

FERGUS—Melton Corp., Fenholt 1, 24-21-17, sd 2290 ft. Mineral Research Co., 1, 13-17-23, dr 860 ft. DeMont Oil Co., 29-16-29, dr 500 ft.

GARFIELD—Carroll Bros., nw ne 6-14n-31e, stndg cmtd 1440 ft.

GLACIER—Rimrock Oil Co., 29-35-5w, rig

HILL—A. H. McFarland, sw 15-30-13e, sd 160 ft. T. P. Jones et al, Perkins 1, 34-33-12e, dr 3480 ft. Jones Oil Co., Mangel 2, 32-34-14e, rig up, ready to spud.

LIBERTY—Bear's Den Oil Co., Laird 1, 31-37n-6e, d 2790 ft and carry pipe. Sunburst O&R Co., Disotell 1, 10-37n-5e, pipe run to 2970 ft. Western Natural Gas Co., Townsend 1, 21-37-43, dr 250 ft.

MADISON—Madison County Oil Co., 1, ne 17-7s-1w, sd 1700 ft.

MUSSELSHELL—Manhattan Oil Co., ne 24-7-24e, sd 60 ft. McElwain Oil Dev. Assn. 2-11-22, rig.

RICHLAND—Community Drill Co., Pioneer 1, se 35-27-51n, dr below 2600 ft.

PONDERA—Claggett Dev. Co., 8-27-4w, spd and sd. Fulton Pet., State 1, 16-27-4w, 100 bbl. well at 2010 ft.

PHILLIPS—Big Dome Oil Co., Bloomberg 1, ne 1-32-32e, sd 980 ft.

SWEETGRASS—Shoshone Consolidated, nw 23-2n-15w, resuming at 2420 ft. Empire O. & G. Co., 32-4s-61e, ur, td 3663 ft.

TETON—Craig-Speer-McCutcheon, 9-23-2w, resuming 100 ft. Continental Dev. Co., Ritmoure 1, 8-27-5w, dr 1420 ft. Genou Oil Co., Speer 3, 5-25-1e, delayed by accident, td 1422 ft, oil showing. Hardrock Oil Co., 1, 5-25-1e, rigging up. Crockner et al, se 2-24-1, rigging up.

TOOLE—Hi-Line-66, Toole 1, ne 27-36n-2e, delayed by accident, td 2410 ft. Sunburst O. & R. Co., Grandview 1, 10-34n-32, rig. Madeline Oil Co., Swenson 1, 33-35-4w, resuming at 1785 ft. Lone Eagle Oil Co., Barthelote 1, 20-36-2e, trying for water shutoff in the Colorado shale. Western Nat. Gas Co., Pitchard 1, 3-37-2e, dr 700 ft.

WEST TEXAS

Completions

Company, Well and Location	Initial Production Bbls.	Depth
CRANE COUNTY—		
Crane County Dev. Co., Mosley-Brookfield 1	*	3280
GARZA COUNTY—		
Gulf Prod. Co., Swenson 1-A	*	5085

ANDREWS COUNTY — Deep Rock Oil Co.'s Harris 1, elev 3173 ft, top salt 1705 ft sd 2970 ft.

BORDEN COUNTY—Dixon Creek Oil Co.'s Clayton-Johnson 1, elev 2606 ft, top salt 1250 ft, ur 1778 ft. Marland Oil Co.'s McDavid 1, top lime 2410 ft, dr by bit 2810 ft; Murphy 1, lcn.

BREWSTER COUNTY—Cole & Cowden's Jackson-Harmon 1-A, skid rig. Forrest Oil Co.'s Skinner 1, spd and sd. J. M. Hickey et al's Jackson-Harmon 1, sd 965 ft. Van McPhail et al's McIntyre 1, sd 1725 ft. Mid-Kansas O. & G. Co.'s Turney 1, sd 3500 ft. Reese & White's Kimball 1, dr 1615 ft. Wilcox & Anderson's Gage 1, sr 2010 ft.

COKE COUNTY—W. H. Brown et al's Foster 1, elev 2222 ft, co 3570 ft. Lipan Oil Co.'s Conner 1, sd 3375 ft; Rawlings 1, sd 2736 ft.

CONCHO COUNTY — Dutton & Hughes' Schultz 1, dr 1005 ft. The Exploration Co.'s Hartgrove 1-A, sd 940 ft.

CRANE COUNTY—Great Basin Oil Co.'s M. T. Eudaley 1, spudding. Leckhart et al's M. M. Treanor-Woods 1, dr 970 ft.

CROCKETT COUNTY—Geo. H. Anderson & P. H. Williams' University 1, dk. J. S. Cosden & Co.'s Paul Perner 1, dr shale 1375 ft. R. B. Coyle et al's Halff 1, spudding. W. W. Donnelly et al's Shannon 1, sd making gas 1664-80 ft. Grayburg Oil Co. et al's Halff 2, co with 150 ft oil at 1031-40 ft; Halff 3-A, sd 200 ft; Collins 1, spudding. Humble O. & R. Co.'s Sorg 2, elev 2714 ft, top salt 995 ft, top lime 2498 ft, sd after swab 400 bbls 18 hours at 2591-2607 ft. Geo. A. Henshaw & McMan O. & G. Co.'s W. Owens 1, top salt 1140 ft, dr 1490 ft. W. R. Simmons & Marland Oil Co.'s University 1, sd 200 ft. Whenlick et al's Halff 1, lcn. World Oil Co.'s Schneeman 1-B, elev 2663 ft, set cas 2880 ft. M. B. Wyrick & Telegram Oil Co.'s Halff 1, top salt 585 ft, sd 800 ft. F. P. Zoch et al's University 1, lcn.

CULBERSON COUNTY—Deep Rock Oil Co.'s T. & P. Fee 2, sd 1210 ft. Dittman Drilling Co.'s Miller 1, sd 1767 ft. J. M. Hickey et al's Finley 1, sd 860 ft.

JEFF DAVIS COUNTY—Humble O. & R. Co.'s C. Flores 1-A, elev 4239 ft, dr 4215 ft. Sam F. Means & G. M. Ball's J. Z. Means 1, co 2563 ft.

ECTOR COUNTY—J. S. Cosden & The Texas Co.'s Connell 6, materials. O. H. Shoup et al's Davis 2, dk.

EL PASO COUNTY—Ellsworth & Haunt's McKinney-Jones 1, rig.

FISHER COUNTY — Cranfill-Reynolds & Sun Oil Co.'s elev 1811 ft, top lime 3073 ft, co after plug back from water at 3135-4 0ft to 3125 ft. R. W. Rainey & Little's Marberry 2, top lime 2995 ft, ur with hfw 3058 ft. Sinclair O. & G. Co.'s Steele 1, dr 555 ft.

GARZA COUNTY—Emerald Oil Co.'s J. M. Boren 3, elev 2363 ft, top salt 660 ft, dr 2855 ft. Marland Oil Co.'s Pippen 1, dr 560 ft.

GLASSCOCK COUNTY—Josey & Flinchbaugh's Cox 1, lcn. Marland & Texon's Settles 1, dr 3425 ft. Merriweather Oil Co.'s McDowell 2, dr 635 ft. Penn et al's Hughes-Johnson 1, lcn.

TOM GREENE COUNTY—Cox et al's Llano et al 1, dr 675 ft. Fitzgerald et al's Bennett 1, sd 1955 ft. R. O. Haubelt et al's Johnson 1, sd 1205 ft. Lone Eagle Oil Co.'s Sharp 1, spd and sd. Marland Oil Co.'s Johnson 1-A, ripping cas, td 3355 ft. World Oil Co.'s Pulliam 1-B, elev 1923 ft, show oil 713 ft, dr 750 ft.

HOWARD COUNTY—Bristow & Merrick's Hooks 5, rig abn; Roberts 1, stdz 1911 ft after shot. Coyle-Concord Oil Co.'s Roberts 4, elev 2742 ft, swab 50 bbls after shot 1873 ft; Roberts 5, co after shot 1841-66 ft. F-H-E Oil Co. et al's Roberts 3-A, cem 6-inch cas 1585 ft; Roberts 4-A, lcn; Roberts 1-C, sd 1960 ft; Roberts 3-D, sd 1300 ft. W. W. Donnelly et al's Clay 1, lcn. Godley O. & G. Co.'s Hooks 2, sd 1875 ft. Greene O. & R. Co.'s Clay 1, dr 915 ft. Geo. A. Henshaw et al's Settles 1,

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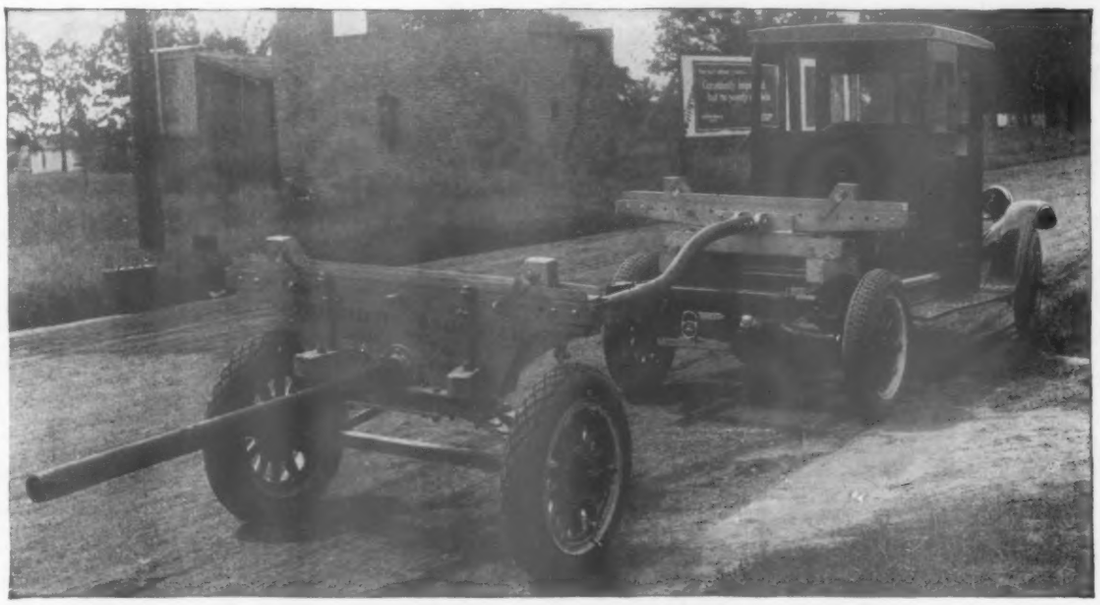

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elev 2680 ft, top lime 2085 ft, co with hfo 2365-80 ft, td 2475 ft. Magnolia Pet. Co.'s Mary-Chalk 10, set cas 1480 ft; Harry Hyman 1, elev 2360 ft, ur 1885 ft; Roberts 3, dr 2335 ft; Roberts 4, dr 245 ft; Roberts 5, elev 2710 ft, top pay 2515-38 ft and sd with hfo; Roberts 7, dr 415 ft; Roberts-Magnolia 1, dr 1865 ft. Marland & Texon's Settles 2-A, dr 365 ft. Mays-Nixon et al's Flowers 1, dr 2325 ft. Merrick & Lamb's Clay 4, lcn. Owen-Sloan Oil Co.'s Roberts 4, spudding. Tate-Weekly & Tubbs' Roberts 3, sd for shot 1890 ft; Roberts 4, cem cas 1599 ft. Bert Weekly Oil Corp. et al's Roberts 1, dr 2895 ft.

HUDSPETH COUNTY — American Land Co.'s Lockhart-Roseborough 1, sd 180 ft. Western States Oil Co.'s Gardner-Mosley 1, sd 1025 ft; S. W. Moore 1, sd 1705 ft.

IRION COUNTY—P. E. Hill et al's H. Horney 1, elev 2268 ft, dr 1277 ft. F. E. Wemm et al's Nutt 1, fsh 375 ft.

JONES COUNTY—R. F. Garland & Co.'s Glynn 1, co 2795 ft. Mid-West Exploration Co.'s S. Phillips 1, dr 820 ft. Phillips Pet. Co.'s Winters 5, top lime 2441 ft, swab 105 bbls oil 14 hours at 2451-53 ft; Winters 6, dr 1290 ft. Rhodes & Higher's Howell 1, dr 2235 ft. Gibson & Johnson's Tiner 1, rig. J. N. Sloan et al's Bennett 1, spd and sd. W. G. Stough et al's Willis 1, sd 1740 ft.

KENT COUNTY—Marland Oil Co. and Texon's Bilby 1, top salt 610 ft, sd 2800 ft.

KING COUNTY—Humble O. & R. Co.'s Pitchfork 1, dr 3765 ft.

LOVING COUNTY — Delaware Oil Co.'s Lockhart-Ramsey 1, top salt 780 ft, dr 2410 ft. Lockhart et al's Fee 1-A, skid rig. Owen-Sloan Oil Co.'s Johnson 1, elev 2943 ft, top salt 955 ft, dr 4595 ft.

LYNN COUNTY—Elpo Oil Co.'s Nevels 1, dr 905 ft.

MARTIN COUNTY—Phillips Pet. Co.'s C. C. Slaughter 1, dk.

MENARD COUNTY—Moody Corp.'s Allison 1, dr 260 ft.

MIDLAND COUNTY — Gholson et al's Moreland 1, elev 2818 ft, top salt 1910 ft, sd 3510 ft. O. H. Shoup et al's Parks 1, ur 905 ft.

PECOS COUNTY—Geo. Anderson et al's University 1, lcn. Alexander & Lyles' Sellman 1, lcn. Benedum & Trees' Corder 1, sd 495 ft. Buell & Hagan's Pryor 1, dr 1365 ft. Diamond Pet. Co.'s Blackstone-Slaughter 1, machine. M. Z. Dibble et al's Bonebrake 1, sd 890 ft. Ditto Oil Co.'s Montgomery 1, spd and sd. Bob Elmore et al's M. Holmes 2, elev 2190 ft, top salt 435 ft, sd 990 ft. Everett et al's Fields 1, spd and sd. Furman Oil Co.'s McNear 1, materials. Gibson Oil Corp. et al's Russell 1, elev 3509 ft, dr 2260 ft. Kershaw & Livington's Cannon 1, elev 2797 ft, top salt 1050 ft, dr 2390 ft. Kirby Pet. et al's Tippett 1, set cas 1238 ft; University 1, fsh 250 ft. McDonald & Stanley's Parsell 1, spd and sd. Matador Oil Co.'s Smith 1, cellar. McMan O. & G. Co.'s Smith 1, rig. Michaelson-Tabot & Roxana's Pecos River Bed 1, sd 935 ft. Mid-Kansas O. & G. Co.'s Pryor 1, set cas 1100 ft. Miller & McNees Tyrell 1, cellar. Olean Pet. Co.'s Sherbino 1, spudding. Oregon Oil Co.'s Yates 1, sd hfw 1430 ft. Phillips Pet. Co.'s El Paso Cattle Co. 1, rig. Roxana & Kirby's University 1, fsh 250 ft. Rowan & Tong's Scharf-Blackman 1, set cas 600 ft. T. G. Shaw et al's Yates 1, lcn. Skelly Oil Co.'s Tippett 1, flowing oil in lime 1280-1400 ft. Southern Crude Oil Pur. Co.'s Scharbauer 1, rig. B. J. Spikes et al's Brown 1, sd 665 ft. Stidham & Tharsher's Belgrade 1, elev 2695 ft, sd 2020 ft. Trancontinental's University 1, sd flowing sul water 1115 ft. Vacuum Oil Co.'s Elsinore 1, elev 3554 ft, dr 1850 ft. World Oil Co.'s M. Cerf 1, elev 3435 ft, dr 1780 ft; Kloh 1, elev 2810 ft, set cas 963 ft.

REAGAN COUNTY—The California Co.'s University 4, top salt 1340 ft, dr 2825 ft. Hagan-Emch & Marland Oil Co.'s E. W. Loftin 1, elev 2610 ft, top salt 1065 ft, ur 2725 ft. Marland Oil Co.'s University 1, top salt 1360 ft, dr 1595 ft. Mark Curtis & Moody Corp.'s Walter 1, rig. Roxana Pet. Corp.'s Sawyer 1, elev 2635 ft, top salt 1105 ft, top lime 2785 ft, dr 2935 ft. Skelly Oil Co. et al's University 2, spudding. The Texas Co.'s J. D. Suggs 3, elev 2636 ft, top salt 990 ft, top lime 2430 ft, dr 2620 ft. Texon O. & L. Co.'s University 1-B, Group 1, dr 7985 ft. J. T. White et al's Schafer-Sterling 1, elev 2695 ft, top salt 1275 ft, top lime 2485 ft, sd with show oil 2580-96 ft.

REEVES COUNTY—The Exploration Co.'s Kinney 1, re-set cas 1960 ft. D. R. Thompson et al's Eddins 1, sd 5130 ft. Grisham-Hunter Corp.'s Rathage-Conner 1, elev 2667 ft, top salt 1037 ft, trace oil 2150-54 ft, dr 2815 ft. Vacuum Oil Co.'s Grisham-Hunter 1, dr 2555 ft.

RUNNELS COUNTY— Gibson-Hunter et al's Serratt 1, ur with show oil 2330 ft. Globe Pet. Co.'s Webb 1, dr 2205 ft. Jones Oil Synd.'s Hale 1, sd 1905 ft. Kennedy et al's Talley 1, dr 2065 ft. McLean et al's Clayton 1, sd 1050 ft. Henry B. May et al's Schneider 1, elev 1666 ft, fsh 1775 ft. Marland Oil Co.'s Russell 1, dr 635 ft. Marland & E. L. Smith Oil Co.'s Herring 1-A, crooked hole 150 ft. Miles Oil Co.'s Lawhon 1, sd 2445 ft. Royal Pet. Co.'s Willingham 1, cem cas 1480 ft. R. B. Summers et al's Reese 1, sd 800 ft. Swensondale Oil Co.'s Werner 1, elev 1803 ft, fsh with hfw 2449 ft. Vacuum Oil Co. et al's Flannagan 1, dk; Fowler 1, rig. Watchorn O. & G. Co.'s King 1, elev 1660 ft, sd 3300 ft.

SCURRY COUNTY—J. B. Mims et al's Koonsman 1, rig.

STONEWALL COUNTY — Henshaw Oil Corp.'s W. P. Moore 1, rig.

SUTTON COUNTY—National Potash Co.'s Ross 1, coring 1300 ft. J. D. Nance et al's Alison 1, dr 400 ft.

TAYLOR COUNTY—Gilbert Johnson et al's Brown 1, sd 3003 ft.

TERRELL COUNTY—Champlin Ref. Co.'s Carter 1, dr 2110 ft. Deep Rock Oil Co.'s Noelke 1, sd 1785 ft. Humble O. & R. Co.'s University 1, dr 1805 ft. Keck-Pecos Trust Co.'s Hamilton 1, dk. Milham Corp.'s Bassett 1, sd 2409 ft. Miller Bros. et al's Allison-Murke 1, rig. Wooley-Jones et al's Parkenham 1, rig.

TERRY COUNTY—King Pet. Co.'s Brownfield 1, sd 4008 ft.

UPTON COUNTY—Atlantic Oil Prod. Co. et al's Elkin 1, sd 325 ft. Curtis et al's Giddings 2, sd 975 ft.

VAL VERDE COUNTY — Magnolia Pet. Co.'s Whitehead 1, dr 6480 ft. O. O. Owens et al's Henry Mills 1, sd 4210 ft. W. B. Thraves et al's Wilson 1, sd 905 ft.

WARD COUNTY—E. H. Devore et al's Black 1, spd and sd. Al del Chambre et al's Monroe 1, spd and sd. Great Basin Oil Co.'s A. G. Davis 1, lcn abn. Estex Oil Co.'s Estes 1, rig. Selby O. & G. Co. et al's Dooley-Rogers 1, dr 1390 ft.

WINKLER COUNTY — Amerada Pet. Corp.'s J. B. Walton 1, elev 2833 ft, co making gas 2441 ft with company tools. Arizona Mining & Eng. Co.'s Hendrick 1, sd 1230 ft. V. T. Bolin & Co. et al's Brown 1, sd 1255 ft. Danciger O. & R. Co. et al's John Sealy 1, dr 200 ft. Gibson & Johnson's Lum Daugherty 1, elev 2883 ft, top salt 1980 ft, top lime 2687 ft, sd with trace oil and gas 2702 ft. Independent O. & G. Co.'s Cowden-McCabe 1, elev 2826 ft, top lime 2235 ft, spray oil with 12 million ft gas and setting cas 2705 ft. Roxana & Llano Oil Co.'s Scarborough 2, elev 2932 ft, top salt 1120 ft, top lime 2960 ft, swabbed 70 bbls 35 degree gravity oil 3108-3213 ft, fsh bit. Sheldon-Burden et al's Hendrick 1, sd hfo 3243 ft after third shot. Southern Crude and R. A. Westbrook's E. G. Hutchings 1-T-90, (Sec. 47) stdz to try and fsh out drill stem, td 2706 ft. White Eagle O. & R. Co. et al's Leck-Collins 1, sd contract completed 3505 ft.

TEXAS GULF COAST

Company, Well and Location	Initial Production Bbls.	Depth
Completions		
HARRIS COUNTY—		
Humble-Marland, Warren 2, Hockley	*	4664
JEFFERSON COUNTY—		
Jim McMurry, Crosby 2, 5 mi ne Port Arthur	*	3570
LIBERTY COUNTY—		
The Texas Co., Staiti 8, S. Liberty	2110	3450
Sun Oil Co., Abshier 1, S. Liberty	300	1950
Abercrombie & Harrison, Lacour 1, S. Liberty	300	2810

AUSTIN COUNTY — Humble's Wilson 1, Raccoon Bend, dr 3424 ft, sand and shale; Crawunder 1-A, Raccoon Bend, dr 1534 ft, shale and lime. L. H. Weadock's Ward 1, td 1385 ft.

BRAZORIA COUNTY—Roxana Pet. Corp.'s Allen Bernard 1, Allen Dome, producing 28 bbls., pumping; Allen 4, Allen Dome, preparing to dr deeper from 4913 ft; Randon 1, Allen Dome, 4910 ft, coring sand, odor of oil and gas. Gulf's Perry 3, south side Stratton Ridge, td 5275 ft. Stanfield & Myers' McNeil 1, Hinckle Ferry, dr 1380 ft, sand. Rucks et al's Muldoon 2, Slop Bowl, standing 1025 ft.

CHAMBERS COUNTY—Pure's Lost River 1, Lost Lake dome, will deepen from 3600 ft; Old River 1, Lost Lake dome, dk; Trinity River 1, Lost Lake dome; dk; Little Lost Lake 1, Lost Lake dome, dk; Lost River Lake 1, Lost Lake dome, dk; Cut-Off Bayou, Lost Lake dome, dk; R. L. Bartlett's Fisher 1, Barbers Hill, sd 2160 ft.

COLORADO COUNTY — Rich Oil Corp.'s Von Rosenberg 1, 2½ mi ne Columbus, will deeepen from 1066 ft. Johnson Bros.' Breeding 1, ne Sheridan, dr 2565 ft, gbo. Carl Milentz's Auerbach 1, near Glidden, sd 525 ft. Deal et al's Tanner 2, 3 mi s of Glidden, sd 80 ft.

FORT BEND COUNTY—Sun Oil Co.'s E. C. Farmer 1, Boling, ru; J. R. Farmer 5, Boling, dr 3470 ft, sand; J. R. Farmer 6, Boling, td 1265 ft; J. R. Farmer 7, Boling, dr 1130 ft; H. R. Farmer 6, Boling, dk; Kaspereck 2, Boling, dr 2020 ft, gbo. Gulf's Wolf 8, Long Point, dr 925 ft; Trone 7, Long Point, dr 1390 ft, gbo; J. M. Moore 13, Moore's Field, dr 3375 ft, shale. Humble's Sugarland Industries 1, Sugarland, drilled plug 3535 ft.

HARRIS COUNTY — Dr. P. S. Griffith's Fee 1, 8 mi nw Houston, sd 480 ft. Juanita Oil Co.'s Kitsman 1, 3 mi n Cypress, td 1718 ft. Hunt et al's Lobit 1, 4 mi n Goose Creek, sd 1350 ft. Humble-Marland's Warren 2, Hockley, abandoned at 4664 ft. Humble's Tex-Ex Warren 2, Hockley, dr 365 ft.

JEFFERSON COUNTY — Deep Test Oil Co.'s McFaddin 1, 4 mi ne Spindle Top, sd 2175 ft. Gulf's Bordages 4, Fannette, dr 5130 ft. So. Spindle Top O. & D. Co.'s Young 1, 1 mi w Nederland, sd 3350 ft. Jim McMurry's Crosby 2, 5 mi ne Port Arthur, abn 3570 ft. Port Arthur O. & D. Co.'s West 4, Westbury, coring 3900 ft. Hinds Oil Co.'s Parker 2, ne side Spindle Top, dr 3675 ft, shale. Traders Oil Co.'s Cissell 1, Spindle Top, dr 3960 ft, shale. The Texas Co.'s Gladys City 1, Spindle Top, dr 3400 ft, blue shale.

LIBERTY COUNTY — Harrison Oil Co.'s Quintette 2, N. Dayton, temp abn at 4600 ft. Barlow et al's Minchcliff 1, 2½ mi ne Cleveland, sd 2215 ft. The Texas Co.'s Staiti 8, S. Liberty, completed for initial of 2110 bbls 22.7 gravity pipe line oil; Green 3, nw extension S. Liberty, dr 2570 ft, shale and sand; Green 2, nw extension S. Liberty, dr 2137 ft, gbo and lime; Pickett 1, nw extension S. Liberty, ru. Sun Oil Co.'s Abshier 1, nw extension S. Liberty, completed as 300-bbl well; Abshier 2, S. Liberty, lcn. Harrison & Abercrombie's Lacour 1, nw extension S. Liberty, completed for 300 bbls; Lacour 2, S. Liberty, lcn.

MATAGORDA COUNTY—Matagorda County Dev. Co.'s Hawkins 1, Bay City, sd 1985 ft. Gulf's Sanborn 6, Hawkinsville, ru.

WHARTON COUNTY — Rich Oil Corp.'s Lee-Clipson 1, ¼ mi sw Lissie and 5 mi e of Eagle Lake, standing 2124 ft.

SOUTHWEST TEXAS

Company, Well and Location	Initial Production Bbls.	Depth
Completion		
DALE—		
The Texas Co., O. T. Moore 1	85	2240

CALDWELL COUNTY—Dr. Bute's Boyd 1, sd 2375 ft. Radcliff et al's Briscoe 1, ne Luling, standing. Hertz & Hinton's Parr 1. Joe Bruner et al's Wilson 1, standing 40 ft. United North & South's Kelly 1, Luling, dr 7555 ft, schist; Tiller 2, Luling, dr 7165 ft, schist.

DUVAL COUNTY—R. Driscoll's Fee 9, sec 23, temp abn 2990 ft; Fee 11, dr 655 ft. National Oil Co.'s Ball 1, dr 2030 ft, gbo.

HIDALGO COUNTY—Dale Smith's Daskan 1, standing 3235 ft.

JIM HOGG COUNTY—Miller Shaw's Jones 1, sec 381, standing 1865 ft. St. Alban's Lopez 9, temp abn at 2145 ft.

SAN PATRICIO COUNTY — Pardee Pet. Co.'s Bell 1, 4 mi s Mathis, sd 2850 ft. Leach et al's Collins 2, nw Mathis, completed 2375 ft, as gas well.

VAL VERDE COUNTY — East Del Rio's Weatherbee 1, standing 3335 ft. Thraves et al's Wilson 1, standing 950 ft.

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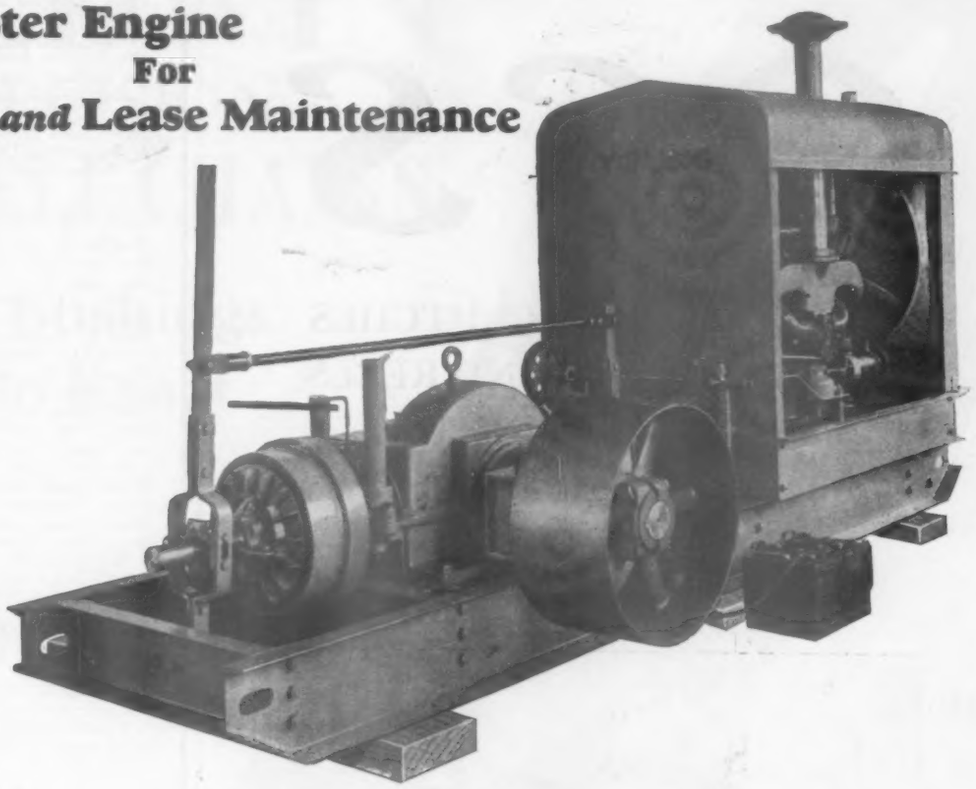

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Request Bulletins

SOUTH LOUISIANA

ASCENSION PARISH—Gulf's United Lands Co. 6, Sorrento dome, ru.

CALCASIEU PARISH—Union Sulphur Co.'s Fee 723, Sulphur dome, set cas at 1340 ft; Fee 724, Sulphur dome, coring sand 3475 ft. Newton Drilling Co.'s Dupre 1, sd 3995 ft.

CAMERON PARISH—Pure Oil Co.'s Sweet Lake 2, Sweet Lake, repairing dk foundation; Sweet Lake 3, Sweet Lake, bailing; La. Land & Exploration Co.'s Calcasieu Lake B-1, ½ mi ne Kelso Bayou field, ru. Calcasieu Oil Co., Magnolia & Union Sulphur Co.'s Caldwell 3, Kelso Bayou, dr 3200 ft; Doiron 1, Kelso Bayou, dr 4500 ft. Noble et al's Ellender 1, Hackberry, will deepen from 4350 ft. Roxana Pet. Corp.'s Watkins Est. 1, Black Bayou, coring sand, 490 ft. Yount-Lee Oil Co.'s School Land 7, Hackberry, dr 5630 ft, shale; State Land 7, Hackberry, dr 3600 ft, rock; State Land 8, Hackberry, ru; State Land 10, lcn.

IBERIA PARISH—La. Land & Explo. Co.'s Vermilion Bay A-2, ru; Avery Planting & Improvement Co. 1, Avery Island, dr 5200 ft, sand. Gulf's State Z-4, Loreauville, dr 720 ft; Broussard 2, lcn. Jefferson O. & Dev. Co.'s Jefferson Island 2, dr 4625 ft, sand.

IBERVILLE PARISH—Roxana's Wilbert 1, White Castle dome, coring water, sand 2290 ft. Union Sulphur Co.'s Wilbert 1, Bayou des Glaise dome, temp abn at 2995 ft; Schwing 2, Bayou des Glaise dome, ru.

JEFFERSON DAVIS PARISH — Estroyal Oil Co.'s Le Doux 2, sd 2980 ft.

LA FOURCHE PARISH — Gulf's W. H. Stark et al 3, Thibodaux, dr 300 ft.

ST. MARTINS PARISH—Rycade Oil Corp.'s Atchafalaya 2, flowing 3000 bbls; Atchafalya Fee 3, lcn.

ST. MARY PARISH—Jacob Dannenbaum's Viguerie 1, Grand Lake, lcn.

TERREBONNE PARISH — Southern Gas Co.'s South Down 4, sd 1390 ft; South Down 5, lcn; Barrios 1, lcn.

EAST TEXAS

Company, Well and Location	Completion Initial Production Bbls.	Depth
PANOLA COUNTY—		
The Texas Co., Adams B-8, I. Hatcher sur	*	1010

ANDERSON COUNTY — Brooks et al's Henby 1, Joseph Mertz sur, dk. Humble's Jones Jr. 1, David Roberts sur, dr 3131 ft.

CAMP COUNTY—J. C. Rogers' Boyd 1, R. M. Montgomery sur, dr 715 ft.

CASS COUNTY—Hickman et al's Mott 1, A. Douthitt sur, sd 202 ft.

CHEROKEE COUNTY — Panhandle Oil Co.'s Whalen 1, J. Jordan sur, sd 1300 ft. Joe Walter et al's Barns & DeLoach 1, Perry Reese sur, sd 1112 ft.

FREESTONE COUNTY—Roxana Pet. Co.'s Marshall 1, D. E. Marshall sur, abn 777 ft.

HENDERSON COUNTY—W. K. Cayton et al's Hoffer & Nash 1, H. Jefferson sur, sd 2910 ft.

HARRISON COUNTY—Fuller & Fuller's Furrh 4, J. Short sur, set 6⅝-inch at 951 ft. Magnolia's Vincent 2, R. W. Bedford sur, sd 1011 ft. Mitchell et al's Jones 1, J. Lipscomb sur, sd 957 ft. Tylong O. & G. Co.'s Armstrong 1, S. Holloway sur, dr 2720 ft. Waterman Drlg. Co.'s Hickman 6, E. Pollack sur, dr 200 ft.

MARION COUNTY—Lumbermens Oil Co.'s Bonham 1, R. Potter sur, sd 1200 ft. Trimont Pet. Co.'s Stiles 7, N. Gupton sur, set 6-inch at 2310 ft.

NACOGDOCHES COUNTY—P. R. Harris et al's Griffin 1, J. W. Anderson sur, sd 1301 ft. Stein & Lewis' Birdwell 1, Jose A. Chirino sur, cleaned out to 500 ft. Union Sulphur Co.'s Whitermark 1, Jose A. Chirino sur, dr 2429 ft.

PANOLA COUNTY—Jim Clark's Furrh 4, J. Short sur, dr 785 ft. J. H. Dickson's Cummings 1, J. Johnson sur, dk. H. Hines' Baker 1, G. Goodwin sur, dr 2967 ft. Lieuallen & Hasenfuss' Hall 1, E. F. Mitcheson sur, rig. Magnolia's Adams 1, J. M. Birdsong sur, dr 1013 ft; Richardson 1, B. Lovall sur, dk; Tillery 1, Jane Thorpe sur, bld. dry 236 9ft; Leigh Trosper 1, B. Stephens sur, coring 2032 ft. Nat. G. & F. Corp.'s Adams 2, Evans Bracken sur, set 10-inch at 103 ft; Adams 4, Evans Bracken sur, set 10-inch at 104 ft. D. Thomasson's Crenshaw 4, J. Womack sur, set 8-inch at 980 ft; Crenshaw 5, B. C. Jordan sur,

BALDWIN
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Yours very truly,

1240 S

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lcn. The Texas Co.'s Adams B-9, I. Hatcher sur, dr 980 ft.

RUSK COUNTY—C. M. Joiner et al's Bradford 1, J. Ximines sur, dr 35 ft. Magnolia's Durren 1, Agulla Norris sur, dk. McCurrie et al's Sparks 1, Jesse Coarse sur, set 6⅝-inch at 2140 ft. D. Osborne et al's Mattthews 1, D. Cortinas sur, sd 2330 ft.

SHELBY COUNTY—Magnolia's Pickering Lbr. Co. 2, Wm. J. Crane sur, dr 100 ft.

SMITH COUNTY—Gulf Ref. Co.'s McCarmond 1, Vincent Moore sur, dr 1265 ft. Humble's Pruett 1, Nichols Henderson sur, dr 68 ft; Birdsong 1, Nancy Childs sur, dr 362 ft.

UPSHUR COUNTY—S. W. Richardson's Newsome 1, J. R. Davis sur, sd 2025 ft; Minor 1, A. Lowery sur, fsh 3500 ft.

ARKANSAS

BRADLEY COUNTY—Johnson & Adams' Southern Lbr. Co. 1, 12-12-12, dr 2780 ft.

CLARK COUNTY—Wm. Henry Tr.'s Clark 1, 34-9-21, sd 510 ft. McKenzie Oil Co.'s Eaken 1, 9-11-19, sd 646 ft.

COLUMBIA COUNTY — Geo. Dawley's Gantt 1, 12-17-22, dr 1925 ft. Mitchell et al's Franks 1, 25-19-22, sd 150 ft. Van Hagen Synd.'s Pickler 1, 19-19-22, sd 850 ft; Mason 1, 31-19-22, rig.

DALLAS COUNTY—Dedman et al's Hillman 1, 20-10-13, dr 250 ft.

GRANT COUNTY—Jones et al's Meeks 1, 5-4-11, sd 1400 ft.

LINCOLN COUNTY—Pine Prairie O. & G. Co.'s Carter 1, 33-10-16, sd 2176 ft.

LITTLE RIVER COUNTY—Grote et al's Allen 1, 2-13-31, sd 2941 ft.

MILLER COUNTY — Dave Bruton's Red River Farm 1, 2-17-26, sd 1997 ft. Lenze et al's Dale 3, 23-15-26, dr 2500 ft.

NEVADA COUNTY—Autrey Oil Co.'s Haynie F-1, 6-14-20, wosr 1227 ft; Graves 1, 31-13-20, dry at 1285 ft. McDonald et al's Pelt 1, 9-15-22, sd 2424 ft. J. J. O'Brien's Moss A-17, 1-14-21, rig; Haynie B-5, 1-14-21, sd 1163 ft.

OUACHITA COUNTY—Little Fay Oil Co.'s Robertson 5, 25-15-16, set 6-in at 2025 ft. Ohio Oil Co.'s Cramer 7, 22-15-16 ,coring 2491 ft.

UNION COUNTY—Grimes Bros.' Hill 2, 7-18-14, rig. E. M. Jones' Stegall 1, 22-17-14, dr 2509 ft. W. R. Keever's Kavanaugh B-2, wosr 2137 ft. Lion O. & R. Co.'s Hays 8, 4-16-15, sd 1087 ft; Murphy G-7, 8-16-15, dk. Lyal et al's Stegall 1, 11-17-13, coring 2624 ft. Magnolia Pet. Co.'s Carroll 2, 1-17-14, sd 1500 ft; Laney 3, 8-16-16, dk; Laney 4, 8-16-16, dk; Cranston 4, 19-17-14, dr 20 ft. Mellon Tr.'s Van Hook 1, 7-18-14, wosr 2206 ft; Bullock 1, 7-18-14, dk. Mountz et al's Pratt 6, 8-18-15, dr 2192 ft. C. E. Murdock's Murphy 2, 17-16-15, sd 2117 ft. J. O. Moore Tr.'s Pagan 1, 18-18-11, dk. National Consolidated Pet. Corp.'s Fagg 1, 8-16-16, wosr 2643 ft. Ohio Oil Co.'s Crain 4, 1-17-14, dk; Goode 2, 2-17-14, sd 3054 ft. Oil Well Corp.'s Dumas 1, 11-17-14, sd 3099 ft; Townsend 1, 10-17-14, milling through csg at 2600 ft. Phillips Pet. Co.'s Johnson 3, 34-15-15, dr 1765 ft. Pure Oil Co.'s Gregory 1, 10-17-14, coring 3113 ft. Rhodes Tr.'s Union Saw Mill 1, 14-19-11, coring 1834 ft. Rovenger Oil Corp.'s Perdue A-1, 10-17-14, rig. Dr. Ruthing et al's Gregory 1, 11-17-14, sd 2740 ft; Gregory 2, 11-17-14, sd 2570 ft. Simon et al's Jerry 1, 21-17-14, dk. Simroll et al's Finley 1, 12-17-14, arr to bail 3169 ft. Simmons et al's Green 1, 3-16-16, dk. Timberlake et al's Dumas 1, 11-17-14, rig. W. R. Keever's Ezell B-2, 12-17-15, sd 105 ft.

MOUNTAIN STATES

WYOMING

ALBANY—Union of California, 33-17-75, dr 550 ft.

BIG HORN — Agate Oil Co., ne 13-51-92, plugged back and cmtd 842 ft. Utah-Southern 3, 29-56n-97w, dr 2708 ft, carrying 6⅝-in. Wisconsin-Himes, 9-54-94w, delayed by title trouble, 673 ft. Northern Wyoming Oil Co., 20-52n-93w, fsh bailer 1400 ft. Producers & Refiners 3, 24-56-98, resuming at 1288 ft.

CARBON — Portland Dome Synd., 28-26n-86w, resum., cmtd 4¾-in at 3697 ft. Graybeal Snyd., 16-28-91, sd 4380 ft. Simpson Ridge Pet. Co., se 34-22n-80w, resumed at 400 ft. Lake Valley Oil Co., se 14-20n-88w, resum at 4915 ft.

CONVERSE—A. E. Tylee, ne 8-32-72, sd,

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Save Money for the Oil Industry with An Actual 100 Per Cent Salvage Value

"STURDYBILT" SECTIONAL HOUSES are a realization of the Oil Industry's need for substantial housing facilities at low cost of initial construction and high salvage value.

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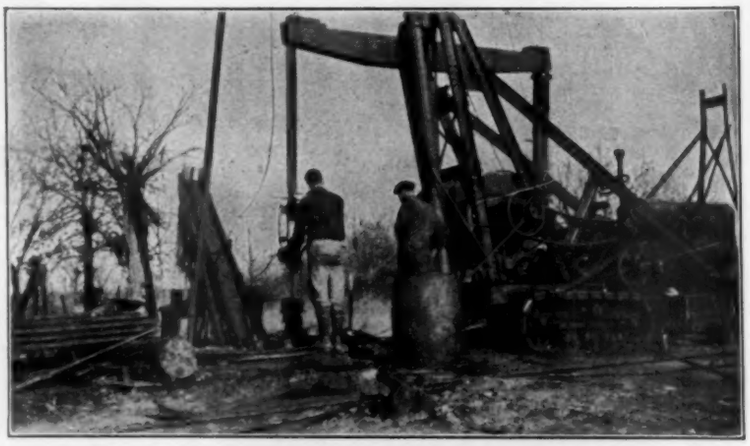

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Oil Weekly

Criterion Oil Co., Irvine 1, 5-31-70, cas trouble 3597 ft. John Ackard, McKinley 1, 21-31-69, sd 3000 ft.

FREMONT—Producers & Refiners, Muskrat 1, 34-34-92, 10-in cmtd 2950 ft. Texas Prod. Co., Alkali Butte 1, 1-34-95, dr 2668 ft. Zola Oil Co., Crook's Gap 1, 25-27-93w, sd 3750 ft. Iowa-Wyoming Inv. Co., 30-1s-2e, bottomed at 1500 ft.

JOHNSON—Fairway Oil Co., Crazy Woman, 1-7-47-82, dr 2500 ft. Tarrant Synd., 17-46n-82w, sd 3625 ft.

LINCOLN—Fontenelle Oil Co., 1, ne ne 1-24n-11-3 w, show 1070 ft., ur cas. Quad States Enterprise Ind., twp 19-116, lcn sptd. Midwest Expl. Co., twp 19-120, will spot lcn.

NATRONA — Combs Inv. Co., 12-39-78, dr 2100 ft. Spindletop Synd., 1, se 32-30-81, cas set 1100 ft. Bessemer Oil Co., 8-33n-82w, resuming.

NIOBRARA — Penn-West Pet. Co., 13-35n-62w, bottomed 800 ft. Hollingsworth Bros., 17-39-79, fsh. Buck Creek Oil Co., 4-36n-62w, rig up.

PARK—Fred G. Ostland, Hoodoo Ranch 1, 23-51-101, sd 1740 ft. Honolulu Oil Co., Four Bear 1, 29-48-103, dr 3100 ft. E. H. Rosenburg, ne 25-58n-98w, cmtd cas 1265 ft. Honolulu Oil Corp., Pitchfork 1, 14-48n-102w, lcn. Ohio Oil Co., 27-53-101, dr 2868 ft. Lenco Pet. Co., 1, 20-52-102, rig up. Ross & Richards, 28-52n-100w, dr 200 ft.

PLATTE—Walter Adams, Trustee, 13-25-66, no report.

SUBLETTE — Wyo. Prod. Co., se 30-28n-113w, dr 1800 ft. Calif. Co., 11-29-115w, resuming at 1200 ft.

SWEETWATER—Prairie O. & G. Co., Tucker 1, 18-13-99, sd 150 ft. P. & R.-Marland of Colorado., 26-20-104, sd 485 ft. Tower Pet. Co., 1,6-14n-103 w, dr 1400 ft. Custer Pet. Co., 24-12-100, dr 1470 ft. Sormir Pet. Co., se 13-10-100, dr 1150 ft.

UINTA—Uinta O. & Dev. Co., 21-51n-120w, sd 2400 ft. Evanston O. & G. Co., 17-15-120, sd 700 ft. California Co., 1, 7-17-117, sp. Wilcox & Henley, se 3-14n-118, dr 500 ft. Olsen Bros., sw 6-14-118, sd 2275 ft. J. R. Kelley et al, 12-14-18, lcn. Minton et al, 8-18-116, dr 450 ft. Minton et al, 18-18-117, will resume at 800 ft on old Spencer well. P. L. Cooper et al, 10-16-118, resuming. Marlmsbury et al, DeLoney 1, 26-14-118, mvg in equipment. Brigman et al, 12-15-118, dr 1300 ft. Whitman et al, 18-16-117, dr 660 ft. Mosey Kastor et al, sec 7 and 19-16-117, rigs mvg in. Charles DeLoney, 5-16-117, lcn. P. L. Cooper, 2-17-117, lcn.

WASHAKIE—Unnamed persons, ne 15-44-64, dr susp 600 ft.

WESTON—Gose Synd., ne 28-47n-65w, try pull 4½-in td 4850 ft. Allen Oil Co., Howard 1, 15-44-64, dr 500 ft.

UTAH

DUCHESNE — Midwest Exploration Co. & Utah Southern Oil Co., Earley 1, 13-4-6, dr 3295 ft.

GRAND—Utah Oil Refining, Moab Consolidated, Utah Southern, Salt Valley 1, 18-23-21, mvg in material. Utah Southern-Moab Consolidated, Shafer 1, 36-26-20, dr 638 ft. Embar Oil Co., Big Six 1, 34-25-21, temp shut down at 5345 ft.

SAN JUAN — Union Oil Co. of Calif., 40 miles southeast of Moab, spotting lcn. Utah Southern, 27-41s-193, abn 1822 ft. Boulder Knoll O. & G. Co., 1, 17-34-25, td 2300 ft., wtg for casing.

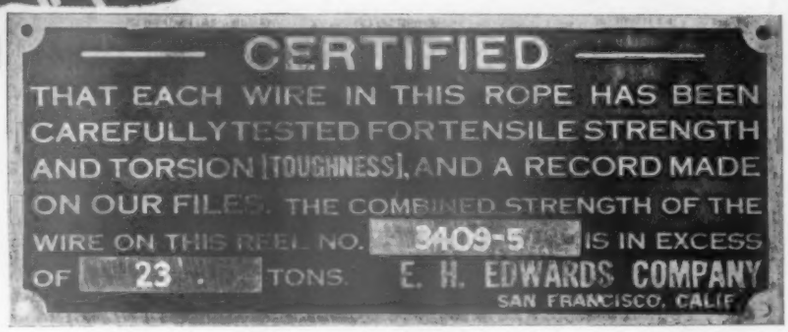
UINTAH—Maude Ellen Oil Co., se of Vernal, hauling in rig. Midwest Explo. Co. and Utah Oil Ref. Co., Vernal 3, 25-5-22, dr 2352 ft. Western Venture Oil Co., 1, 6-5-20, dr 680 ft. Maude Ellen Oil Co., 28-3-21, effect. form. shutoff, td 600 ft.

UTAH—Diamond Oil Co., No. 3, ne 28-8s-4e, dr 850 ft.

WAYNE—Texas Prod. Co., Shipley 1, 5-27-14, fsh tools at 2990 ft. Phillips Pet. Corp., 16-27-16, bldg rig.

WASHINGTON—Ora L. Hiatt et al, nw 30-43-14w, dr 253 ft. Mid-American Oil Co., nw 17-43s-15w, dr 1300 ft. Uzona Oil Co., se 17-43s-15w, will resume at 370 ft. C. E. Cline et al, 2, 27-41s-12w, will resume at 275 ft. C. E. Cline et al, 3, 23-41s-12w, will resume at 542 ft. Virgin Pet. Corp., 2, ne 23-41s-12w, will resume at 1653 ft. Zion Oil & Ref. Corp., 3, sw 13-41s-12w, will resume at 756 ft.

This Certificate on Every Reel—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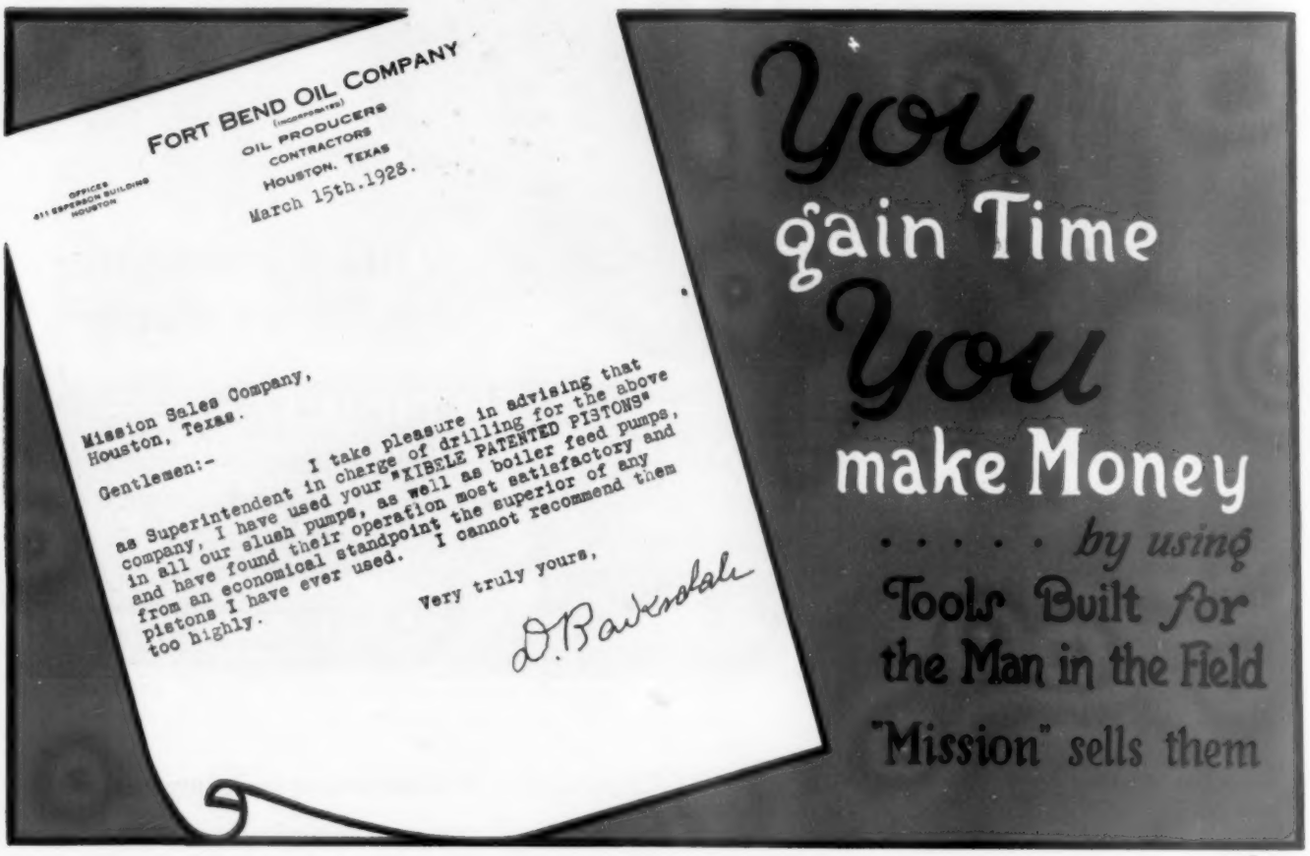
Mr. Oil Operator!

Read This Letter


FORT BEND OIL COMPANY
(INCORPORATED)
OIL PRODUCERS
CONTRACTORS
HOUSTON, TEXAS
OFFICES
611 ESPERSON BUILDING
HOUSTON
March 15th.1928.
Mission Sales Company,
Houston, Texas.
Gentlemen:-
As Superintendent in charge of drilling for the above company, I have used your "KIBELE PATENTED PISTONS" in all our slush pumps, as well as boiler feed pumps, and have found their operation most satisfactory and from an economical standpoint the superior of any pistons I have ever used. I cannot recommend them too highly.
Very truly yours,
D. Barksdale
You
gain Time
You
make Money
. . . . . by using
Tools Built for
the Man in the Field
"Mission" sells them

PUMPING EQUIPMENT *out* . . . . . OIL *in*

FROM the Mission shops and warehouses, pump equipment goes, via the 18 railroads that leave Houston to oil fields in every part of the nation . . . Seminole, Smackover, Spindletop . . .

The Houston ship channel is available for shipping oil field supplies wherever the seven seas touch oil territories . . . Trinidad . . . Baku . . .

Much of the oil pumped by machinery made in Houston comes back to Houston for refining, in pipe lines from Texas, Oklahoma, Louisiana, from all parts of the Middle United States—one even from Wyoming. Oil tankers, too, bring oil from Mexico and overseas fields.

Houston is the center of an oil empire of a 600-mile radius, within which is produced one-half of the oil of the world.

In the great oil fields here and abroad, you will find Mission products . . . KIBELE PISTONS . . . SECO HOSE CLAMPS . . . VALVE SEAT PULLERS . . . LINER PULLERS . . . TUBING SWABS.

MISSION

Sales Company, Inc.,

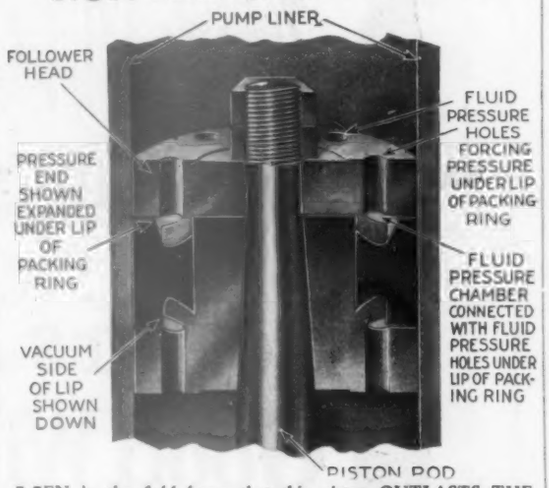
Esperson Bldg.

HOUSTON

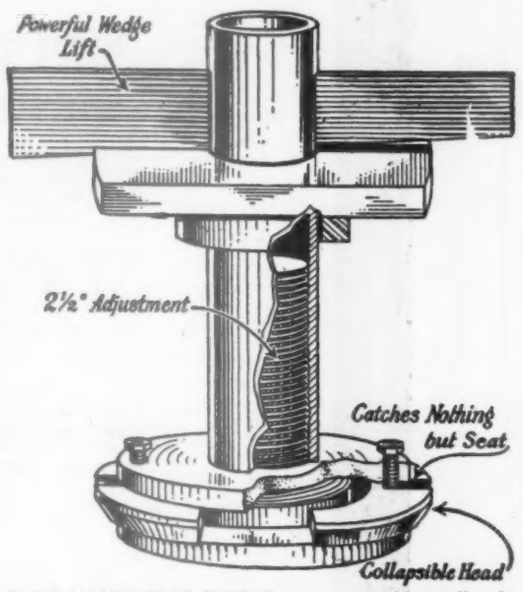
SECO HOSE CLAMP AND NOZZLE (ALL STEEL)

MAKES your hose last 150 per cent longer. At least 98 per cent of hose trouble is caused from loose wire at the end of the clamp. The SECO HOSE CLAMP made to go over the wire, preventing it from loosening. Tested up to 1800 pounds pressure without danger. Easily carries 1000 pounds pressure on ordinary 6-ply hose.

THE KIBELE PATENTED PRESSURE SELF EXPANDING FRICTIONLESS AND NON-SLIPAGE PISTON


PUMP LINER
FOLLOWER HEAD
FLUID PRESSURE HOLES FORCING PRESSURE UNDER LIP OF PACKING RING
PRESSURE END SHOWN EXPANDED UNDER LIP OF PACKING RING
FLUID PRESSURE CHAMBER CONNECTED WITH FLUID PRESSURE HOLES UNDER LIP OF PACKING RING
VACUUM SIDE OF LIP SHOWN DOWN
PISTON ROD

MEN in the field know that this piston OUTLASTS THE AVERAGE PISTON FOUR OR FIVE TIMES. Used by the largest users of pump equipment. Made for rotary drilling slush pumps, boiler feed, and oil gathering pumps. SAVES VALUABLE TIME. KEEPS YOUR RIG RUNNING.



SECO VALVE SEAT PULLER . . . a positive puller that will *not* break while pulling valve seats, regardless of how tight they are stuck. Approved by the best engineers in the pump manufacturing business. Accepted by the men in the field as insurance against delays.

Attention!

Field Men . . . Just as Dave Barksdale has learned that the KIBELE PATENTED PISTON surpasses them all, so other practical oil men find that this and other tools sold by the Mission Company are BUILT FOR THE MAN IN THE FIELD. They are made by experienced oil men who know that tests in the severe conditions of the field are the only tests. They are strong and lasting.

When you go to your supply store, ask for the KIBELE PATENTED PRESSURE PISTON . . . SECO HOSE CLAMPS . . . SECO VALVE PULLER.

FOR COMPLETE INFORMATION WRITE US TODAY

MISSION

Sales Company, Inc.,

Esperson Bldg.

HOUSTON

Dollars Earned Good Will Won

The Burns Tubular Temper Screw has served the Oil Man well. For years in fields throughout the world its steady trouble proof operation has resulted in dollars saved by the Industry and the winning of increased good will for the name *Burns* everywhere.

For continued long life and ease of operation—use only genuine Burns parts.

BURNS
Tool Company
OKMULGEE - OKLAHOMA

SOUTHERN CALIFORNIA

Company, Well and Location	Initial Production Bbls.	Depth
POTRERO—		
Petroleum Securities Co., Connolly 1	*	5030
RIVERA—		
Associated Oil Co., Patterson 1, 13-2-12	*	5440

CLAREMONT—Claremont O. & G., Co.'s 1, sd 1130 ft.

CALABASAS—Easton & Smith's 1, 19-1-17, rigging rotary.

COSTA MESA—Mesa Pet. Co.'s B. & G. 1, 16-6-10, dr 2650 ft.

CYPRESS—Ohio Oil Co.'s Miller 1, 9-4-11, dr shale 1466 ft.

DAVIDSON CITY—California Well Drilling Co.'s 1, fsh for dr pipe 7475 ft.

DOMINGUEZ — Dominguez Extension Oil Co.'s 1, 22-3-13, sd 5510 ft.

EL SEGUNDO—Southern California Drilling Co.'s Matteson 1, sd 4865 ft.

FULLERTON—Shell Co.'s Stern 1, dr sandy shale 4170 ft.

HAWTHORNE — San Clemente Oil Co.'s Peck 1, sd 5765 ft. Scott & Currier's Scott 1, rig. Shell's O'Donnell 1, sr 5375 ft.

HUNTINGTON BEACH—Calnan Petroleum Corp.'s S. & W. 1, sd 5107 ft. Duell Petroleum Corp.'s Schuh 1, rig. J. A. Brower's Traveller 1, production test 5490 ft.

INGLEWOOD—Hurst Oil Corp.'s 1, sd 3740 feet.

LANCASTER—Otis Andrews' 1, 23-8-13, dr 1866 ft. John B. Harding's 1, 28-7-11, co 970 feet.

LYNWOOD—Security Pet. Corp.'s 1, 13-3-13, fsh for dr pipe 4275 ft.

MAYWOOD—Magnolia Pet. Synd.'s Tweedy 1, sd 4450 ft.

MONTEREY PARK—Monterey Park Pet. Co.'s 1, 26-1-12, dr hard sand 4053 ft.

NEWHALL—W. W. Stabler's Castaic 1, sd 3410 ft.

POTRERO—Associated's Cypress 1, pumping 5 bbl oil and 15 bbl water 5408 ft; Cypress 2, dr 3906 ft. Petroleum Securities' Connolly 1, abn 5030 ft.

PUENTE HILLS—Anchor Pet. Co.'s Hudson 1, sd 2270 ft.

RIVERA—Associated's Patterson 1, 13-2-12, abn 5440 ft.

SAN FERNANDO—Shell Co., Mission 2, lcn. lcn.

SAN JOSE HILLS—D. & B. Oil Co.'s Amar 1, plubbed to 2600 ft.

SEAL BEACH—George F. Getty's 15, dr shale 4073 ft. A. D. Kneuper's 1, 10-5-12, new lcn.

SUNSET BEACH—Olympic Ref. Co.'s 1, 19-5-11, dr gray sand 4851 ft.

TELEGRAPH CANYON—Quadra Pet. Co.'s M. J. M. 1, sd 4210 ft.

YORBA—Standard Oil Co.'s Y. L. W. 1, fsh 5310 ft.

WATTS—Southwest Pet. Corp.'s Hamsaur 1, sd 4300 ft.

WATSON—White-Behr Oil Co.'s 1, 20-4-13, 10-in csg cemt 4412 ft, td 4610 ft.

MISCELLANEOUS

RIVERSIDE COUNTY—L. R. Clark's 1, 5-2-3, dr 956 ft. Hemet Petroleum Co.'s Ward 1, dr hard sand 2430 ft. Spindletop Oil Synd.'s 1, co 3175 ft. Trabuco Oil Co.'s 1, dr hard sand 3380 ft.

SAN BERNARDINO COUNTY — Colton Terrace Oil Co.'s Colton 1, sd 1675 ft. Hesperia Oil & Gas Co.'s 1A, plugged to 2400 ft. J. W. McPhearson's Yucaipa 1, sd 455 ft. Western Pacific Oil Co.'s 1, co 3005 ft.

SAN DIEGO COUNTY—Davenport O. & G. Co.'s 1, dr 361 ft. Mills Oil Co.'s 1, dr hard shale 2375 ft. S. S. Turner's Baler 1, dr hard sand 412 ft. Ganymede & Dunn's 1, fsh for csg 3210 ft.

NORTHERN CALIFORNIA

ADOBE CANYON—Berry Oil Co.'s 1, 25-27-28, dr 626 ft.

BAKERSFIELD—Jackson & Chamberlain's 1, 19-29-28, dr 326 ft. Pacific Eastern's Union Avenue 1, 6-30-28, 9-in csg cemt 4265 ft, td 4500 ft; 2, 6-30-28, fsh for dr pipe 5640 ft.

BELRIDGE—Zurich Oil Co.'s 1, 18-28-22, sd 2790 ft.

BUTTONWILLOW — Milham Explo. Co.'s K-4, 8-28-23, dr 1265 ft; S-1, dr 4130 ft. Mc-

Magnolia Petroleum Company

Producer *Refiner* *Jobber* *Distributer*

High Grade Petroleum Products

FUEL OIL

LOADING STATIONS AT

BEAUMONT CORSICANA SABINE GALVESTON FT. WORTH
HARBOR ISLAND LULING CORPUS CHRISTI DALLAS
HERMA, ARK. MIRANDO

MANUFACTURER OF

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DEPENDABLE LUBRICANT

"a grade for each condition"

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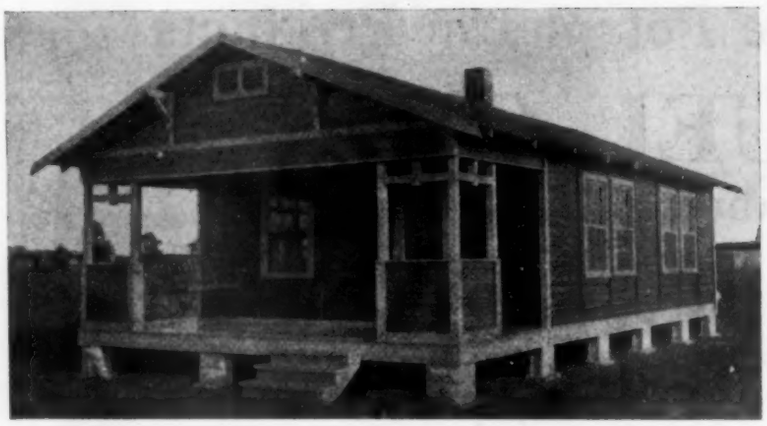
Ideal for Oil Field Use



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Besides many designs for homes we have ready for immediate shipment the following buildings for oil field and industrial use:

Bunk Houses — **Mess Halls**
Dormitories — **Bath and Out Houses**
Warehouses — **Industrial Buildings**
Office Buildings

These Sectional Buildings are made of highest grade material, easily erected, and have a high salvage value.

Sections clearly marked—skilled labor not necessary for erection.

Write for our new catalog.

Houston Ready-Cut House Co.
HOUSTON, TEXAS

Successors to CRAIN READY-CUT HOUSE CO., Houston, Texas

Adams et al's 1, 26-29-23, dr 5232 ft. Southern Calif. Gas Co.'s 1, 4-28-23, dr shale 2818 ft.

COMANCHE POINT—Kern 29 Oil Co.'s 1, sd 2440 ft. W. W. Stabler's 1, 23-32-29, dr 1800 ft.

DELANO—North American Consolidated Oil Co.'s Wallace 1A, 5-25-25, dr 4375 ft.

DEVILS DEN—Marathon Oil Co.'s 1, 13-25-28, sd 4390 ft. Midway Northern Oil Co.'s 1, 25-25-18, sd 2460 ft. Robins Oil Co.'s 1, 25-25-18, sd 2280 ft. R. H. Sayers' 1, 25-25-18, sd 1475 ft.

EDISON—General Petroleum's Kerwin 1, 5-30-29, plugged to 3810 ft. Midway Northern Oil Co.'s Brown 1, 29-29-30, dr 3240 ft. Superior Oil Co.'s 1, 24-29-29, dr 2400 ft.

GREENFIELD—J. E. O'Donnell's 1, 31-30-20, dr 1555 ft. California Kentucky Oil Co.'s 1, 8-29-21, sd 1640 ft. Exeter Oil Co.'s Parry 1, 1-29-20, sd 835 ft. H. Moore's 1, 11-29-20, dr 1172 ft. Cymric Oil Co.'s 1, 36-28-20, dr 1826 ft.

McKITTRICK—McKittrick Hills Oil Co.'s 1, 18-30-22, sd 3250 ft. Abbott Petroleum's 1, 2-30-21, sd 1940 ft. Lacy-Easper Pet. Co.'s 1, 18-19-22, sd 3265 ft. Ozena Oil Co.'s 1, 27-29-21, sd 1770 ft.

SEMITROPIC—Semitropic Oil Co.'s 1, 21-26-22, sd 1560 ft.

SHALE HILLS—Huntington & Hawthorne's 1, 35-26-18, sd 600 ft. Nelson & Mountford's 1, 18-27-19, sd 2100 ft. Oildale Oil Co.'s 1, 13-27-18, sd 560 ft.

SUNSET—Fresno-Sunmaid Oil Co.'s 1, 16-11-24, sd 4200 ft.

TEMBLOR HILLS—Wesco Petroleum's Salegna 1, 36-29-20, plugged to 380 ft.

TEHACHAPI-MOJAVE—C. R. Asmussen's 1, 23-11-11, sd 1510 ft. Crusaders Oil Co.'s 1, 21-10-10, testing 6¼-in csg 2255 ft, td 2370 ft. John B. Harding's 1, 5-10-10, sd 1050 ft.

WASCO—Main Oil Co.'s 2, 28-27-24, sd 5270 feet.

SANTA BARBARA COUNTY

GOLETA—Barnsdall's Edwards 2, producing 50 bbl oil and ¶¼ 2455 ft. J. J. Rekar's La Patera 1, 8-4-26, sd 2180 ft.

SANTA BARBARA—Channell O. & Dev. Co.'s 1, 29-4-27, swabbing 6025 ft. Petroleum Exploration Co.'s 1, 20-4-27, dr hard sand 2790 feet.

SUMMERLAND—Summarland Oil Co.'s 1, 22-4-26, working for water shuto¾ 3045 ft.

VENTURA COUNTY

BARDSDALE—Calif. Eastern Oil Co., 5-3-19, dr 1300 ft.

CAMARILLO—American Oil Co.'s 1, 33-2-20, dr 100 ft.

FILLMORE—Henry Demond's 1, 19-4-19, sd 250 ft. Sespe Oil Co.'s 2, sd 4005 ft.

MOORPARK—E. A. Parkford's Lloyd 1, sd 4000 ft.

OJAI—J. W. Hackworth's 1, 11-4-23, dr 1874 feet.

OXNARD—Shell Co.'s McGrath 2B, dr 775 feet.

PIRU—Bolsa Chica Oil Co.'s H-1, 5-4-18, rig. Leonard Oil Co.'s 1, 4-4-18, dr 4065 ft. Petroleum Securities' D-1, 26-5-10, sd 4200 ft. Petroleum Producers' F-1, 17-4-18, sd 610 ft.

RINCON—Montecito Oil Producers' C-1, 13-4-25, dr sand 3650 ft. Scott Petroleum's 1, 35-4-25, oil showings 3860-3885 ft.

RED MOUNTAIN—Miley Exploration's C-1, 7-3-23, co 750 ft.

SANTA PAULA—W. W. Bryant's 2, 21-4-21, sd 435 ft. San Pedro & Point Fermin Synd.'s 1, 13-4-21, sd 400 ft.

SATICOY—Standard's Eaton 2, new lcn; Eaton 1, sd 1305 ft.

SIMI—Emma F. Exline's 1, 33-3-21, rig. Shell's Strathern 1, 6-2-18, dr 4306 ft.

SOUTH MOUNTAIN—Ring Explo. Co.'s 1, sd 4000 ft.

VENTURA—Star Petroleum's Canet 1A, 13-3-23, sr 5760 ft.

MISCELLANEOUS

ALAMEDA COUNTY—Calhoma Oil Co.'s L-1, sd 1220 ft.

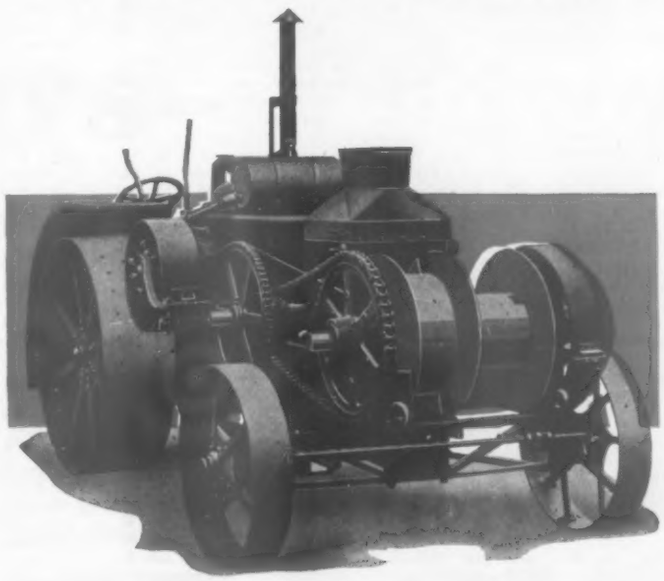
COLOUSA COUNTY—Continental's 1A, 31-18-4, fsh for dr pipe 4300 ft. Numa Oil Co.'s 1, 19-15-4, dr hard sand 323 ft.

CONTRA COSTA COUNTY—W. Edwards' 1, 31-2-2, sd 2225 ft.

FRESNO COUNTY — Fresno-Madera Oil Co.'s 1, 18-12-21, dr blue shale 4010 ft. Fresno-United Oil Co.'s 1, 23-15-18, sd 3960 ft. Superior Oil Co.'s 1, 18-21-17, rig.

HUMBOLDT COUNTY—Eureka Oil Co.'s 1, 21-4-1, sd 3070 ft. First National Petroleum

Every Rumely OilPull Winch Tractor that Has ever been Sold is Still Running



Why? Because it is built heavy and strong, complete in one factory, especially for oil field work, and has approximately but one-half the working parts of any tractor and winch built. These are also the reasons for its reputation for economy and service the world over.

This line-up is evidence of the confidence of big operators in Oil Pull Winch Tractors.

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Special Representative and Developer of Oil Field Machinery

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TULSA, OKLAHOMA

Co.'s 1, 36-2-1, lcn. Humboldt Oil Co.'s 1, 6-2-1, sr 2280 ft.

KINGS COUNTY—Associated Oil Co.'s 1, 12-23-18, sd 2045 ft. Bolsa Chica Oil Co.'s 1, 30-23-19, plugged to 2265 ft. General Petroleum's 2, 22-26-18, sdtr dr pipe 6765 ft. Milham Explo. Co.'s 1, 2-22-17, dr hard sand 6941 ft. Monocline Development Co.'s 1, 7-21-21, sd 4310 ft. Hugh McPhail's 1, 13-24-18, sd 2100 ft. South Coalinga Oil Co.'s 1, 35-24-19, sd 3105 ft.

MADERA COUNTY—Fort Wayne - Madera Synd.'s 1A, 22-10-17, new lcn.

MONTEREY COUNTY—Marland Oil Co.'s 1, 32-24-11, dr 1876 ft.

SAN LUIS OBISPO COUNTY—Arroyo Grande Oil Co.'s 1, 21-32-13, sd 4385 ft. Barneyberg Oil Co.'s 2, 25-32-14, sd 2270 ft. Panorama Oil Co.'s 1, 7-31-21, co 2035 ft. Painted Hills Oil Co.'s 1, 34-30-10, sd 2270 ft. Richfield Oil Co.'s 1, 10-29-17, sd 3130 ft; 1, 15-29-27, dr brown shale 2738 ft. San Luis Synd.'s 1, 29-31-13, dr 2450 ft. Union's Russ 1, 34-32-15, dr 1470 ft. Waklin Petroleum's 1, 27-27-11, sd 2610 ft.

SAN MATEO COUNTY—Sequoia Oil Co.'s 1, 13-7-5, plugged to 1430 ft. Shell's Butts 1, 21-6-5, dr hard sand 2160 ft; Cowell 1, 8-6-5, dr 5830 ft.

SONOMA COUNTY—Shell's Mossi 1, 8-5-7, dr 1490 ft.

TULARE COUNTY—Ducor Drilling Co.'s 1, 29-23-27, dr 4162 ft.

OKLAHOMA

GRANT COUNTY—T 28n, R 3w, sec 6, Otstot Dev. Co.'s Snyder 1, nec, sd 4518 ft.

HARPER COUNTY—T 27n, R 21w, sec 24, A. F. Kopison Oil Co.'s Selman 1, nec se, spd and sd.

WOODS COUNTY—T 27n, R 15w, sec 20, Sooner State Oil Co. & E. R. Black's Marcum 1, c sw, spd and sd.

GRANT COUNTY—T 27n, R 5w, sec 18, J. W. Bailey's Custard 1, c se, show oil and gas at 4628-34 ft, ts 4835-42 ft, 800,000 gas, ur 4-in csg.

KAY COUNTY—T 27n, R 2w, sec 23, Boucher et al's Cooper 1, sec, dr 2200 ft.

GRANT COUNTY—T 26n, R 4w, sec 34, Sooner State Oil Co.'s Royce 1, swc nw, sd 550 ft.

KAY COUNTY—T 26n, R 2w, sec 34, H. J. Markham Jr.'s McGaha 1, swc ne, hfw 1750-65 ft, dr 2200 ft. T 26n, R 2e, sec 32, J. A. Vencent & Nat'l Union's McNeal 1, nwc ne, sd 2795 ft.

HARPER COUNTY—T 25n, R 22w, sec 14, Hoffer Oil Co.'s Cooper 1, nwc se, sd 4182 ft.

GRANT COUNTY—T 25n, R 4w, sec 22, Cowden's Vallner 2, nec se ne sw, dr by bit 5640 ft.

KAY COUNTY—T 25n, R 1w, sec 15, Tonkawa Dev. Co.'s McDaniels 1, sec, dr 4630 ft. T 25n, R 1e, sec 10, Miller Brothers' Anderson 1, nwc se, td 4167 ft, dry and abn.

NOBLE COUNTY—T 21n, R 1w, sec 7, R. L. Corley's Williams 1, sec ne sw, sd 1920 ft.

CIMARRON COUNTY—T 6n, R 2e, sec 24, Jake Phillips School Land 1, nwc, sd 4370 ft. T 5n, R 2e, sec 22, Sinclair's School Land 1, nwc, ordered to plug at 4872 ft. T 5n, R 5e, sec 27, Ramsey Brothers' State 1, c nw ne, shot 30 qt 4090-4440 ft, show 35 bbl, 4670-81 ft, td hfw, pb to 4040 ft, sd. T 4n, R 1e, sec 34, Ramsey Pet. Co.'s School Land 1, ce se, ur 6-in 3670 ft.

BEAVER COUNTY—T 4n, R 25e, sec 22, O. H. Bonner et al's Maple 1, c se ne, rig.

CIMARRON COUNTY—T 3n, R 15e, sec 17, Texas County Gas Co.'s Barbee 1, c ne ne, dr out cemt 2536 ft. T 2n, R 9e, sec 2, Fenton, Brookins & Flowers' Smaltz 1, swc ne ne, spd and sd.

TEXAS COUNTY—T 2n, R 18e, sec 23, Connelly, Trammell & anner's Graves 1, nec sw sw, sd 315 ft. T 1n, R 15e, sec 26, Hydraulic Oil Co.'s Hitch 1, nec, sd 600 ft. T 1n, R 18e, sec 11, Three Way Oil Co.'s Price 1, sec nw, hfw 3318-58 ft, sd. T 1n, R 19e, sec 5, Trammell, Connelly & Danner's Taney 1, sec nw, sd 280 ft.

WOODWARD COUNTY—T 24n, R 17w, sec 32, Otstot Dev. Co.'s Simmons 1, sec, sd 1500 ft.

GARFIELD COUNTY—T 24n, R 6w, sec 9, T 24n, R 3w, sec 14, Sager Oil Co.'s Garsarch 1, fsh 5-in 4719 ft; sec 24, Marland Oil Co.'s Disney 1, c nw sw, d and a at 5125 ft. T 22n, R 5w, sec 3, Ashby & Barr's Swinery 1, nwc, sd 740 ft.

ELLIS COUNTY—T 21n, R 25w, sec 9, Okla Northern Oil Co.'s 1, c se nw, sd 300 ft.

WOODWARD COUNTY—T 21n, R 19w, sec 15, Burgoyne Brothers' 1, swc se ne, dr 360 ft. T 21n, R 21w, sec 25, Sharon's Elmore 1, swc, sd 2778 ft.

GARFIELD COUNTY—T 21n, R 4w, sec 12, Beopple et al's Schriver 1, cel sw sw ne, sd 1850 ft. T 20n, R 4w, sec 9, Marland's Looman 1, nec se, fsh csg; sec 12, Marland's Miller 1, swc, sd 4586 ft.

DEWEY COUNTY—T 18n, R 15w, sec 9, Huckelby & McCoy's Perfect 1, nec, sd 3274 ft.

LOGAN COUNTY—T 18n, R 4w, sec 6, Davis & Browning's Woods 1, nec se, lcn; sec 11, Welch, Acton & Brown's Hall 1, nec se, sand 4748-85 ft, °ow 60 bbl through Bradenhead, dr 6509 ft. T 18n, R 3w, sec 33, Haley & Consolidated's Quier 1, sec sw, dr 3805 ft. T 17n, R 1e, sec 20, T. B. Slick's Signs 1, nwc sw, sd 5067 ft; sec 28, T. B. Slick's Berry 1, swc se, td 5730 ft, hfw, pb to 4700 ft.

KINGFISHER COUNTY—T 16n, R 7w, sec 6, Gault-Brown's Campbell 1, c nw se, dr 2410 ft. T 16n, R 6w, sec 27, Crawford & McKenna's Sturgeon 1, nec sw, dr 4060 ft. T 16n, R 5w, sec 26, Gault Brown Oil Co.'s Johnson 1, c nw, hfw 4363 ft, sd 4512 ft.

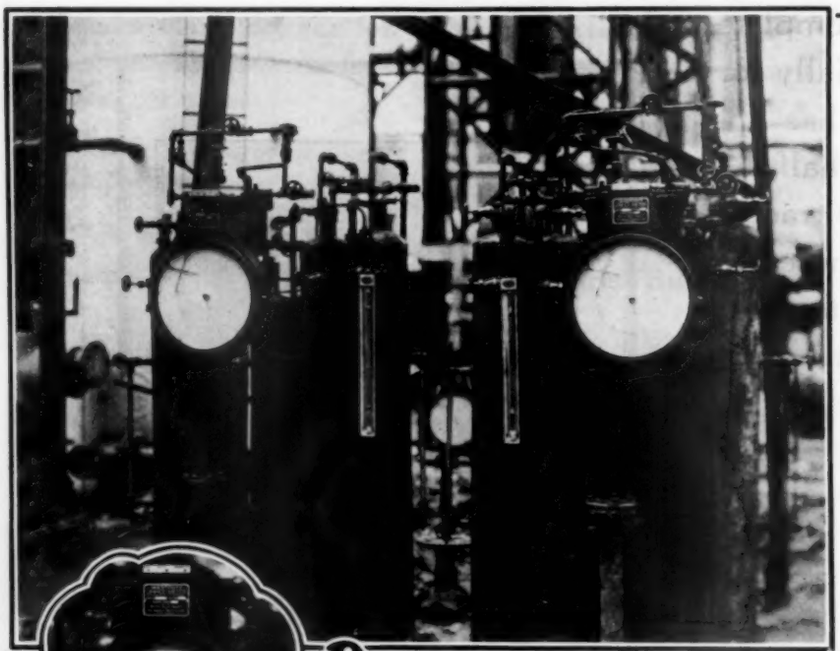
LOGAN COUNTY—T 16n, R 1w, sec 28, Blackford O. & G. Co.'s Lair 1, csl n½ se, sd 1675 ft, litigation. T 15n, R 1w, sec 12, Bu Vi Bar's Kirkpatrick 1, c sw, sd 4505 ft.

CANADIAN COUNTY—T 14n, R 6w, sec 9, A. D. Spears' Piatt 1, sec ne, sd 3223 ft.

OKLAHOMA COUNTY—T 13n, R 3w, sec 15, Cromwell et al's Thompson 1, swc ne ne, cemt 5-in 6820 ft, trying to shut off water 6850 feet.

CANADIAN COUNTY—T 11n, R 7w, sec 9, Ramsey Brothers' Newman 1, csl ne, dr 4465 ft. T 10n, R 6w, sec 1, J. V. Bailey's Robinson 1, c ne nw, spd and sd.

OSAGE COUNTY—T 23n, R 7e, sec 9, Kay County Gas Co.'s 3, swc se se, sand 2944-3044



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METRIC orifice METERS

Metric orifice meters are giving refiners eyes that they may see and records that they may know.

The refineries that are setting the pace in progressive practices are developing closer means of checking each step. Since the orifice meter is the most adaptable measuring device for such work, their installation is multiplied by the new uses for which they are constantly being requisitioned.

This view of two orifice meters illustrates a particularly popular use. The installation is at the West Coast Refining Company, Placentia, California. It shows their method of securing accurate determinations of the oil pumped to absorbers. Although the use of the cylinders is unique, the application of the orifice meter to this particular service is typical of the more important refineries.

From the start to finish, orifice meters are established in refineries on their merit for accuracy, adaptability, ease of operation and complete dependability.

Have you been overlooking opportunities where they can help?

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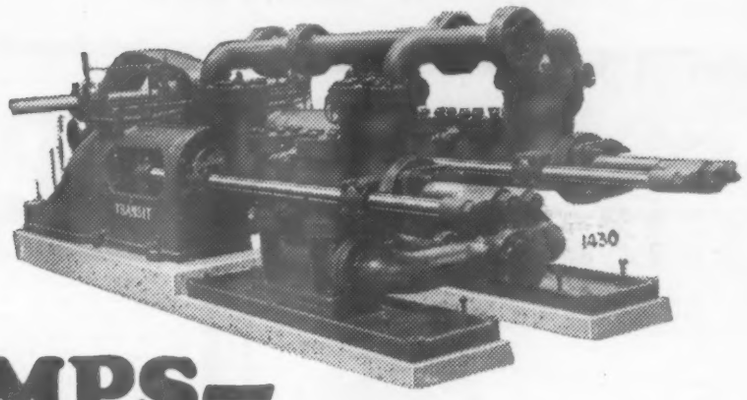
Say you saw it in The OIL WEEKLY



PUMPS—

Here is a Texas Type power pump by Transit, adapted in every detail to many pipe line jobs. And wherever it fails to answer the requirements exactly, Transit makes some other Pump that does. Our engineering department, infinitely experienced in such matters, is glad to make recommendations in cooperation with field, pipe line and refinery operators who believe that efficiency and economy lie in finding the right pump for any given work.

—by TRANSIT

FRICK REID SUPPLY CO.

Tulsa, Okla. Pittsburgh, Pa.
West of the Mississippi, Stores Everywhere
East of the Mississippi, The Frick & Lindsay Co.

Axelson Machine Co.
Sucker Rods, Pull Rods, Plunger Working Barrels (Pumps) etc.

Beaumont Iron Works Company
Dreadnaught Rotary Equipment, Water-Cooled Drawworks, Pumping Hoists, Travelling Blocks, etc.

Donovan Boiler Works
Oil Country Boilers and Tanks.

Frick-Reid Service Belting
Rubber Covered and Friction Surface.

National Transit Pump and Machine Co.
Power and Steam Pumps

J. P. Ratigan
Grips, Clamps, Beam Hangers.

Joseph Reid Gas Engine Company
Gas and Oil Engines, two and four-cycle, Band Wheel and Direct Drive Pumping Powers.

Whitlock Cordage Co.
Manila Cordage, including Frick-Reid Manila Bull Ropes—same quality for ten years.

Lapweld and Seamless Tubular Goods

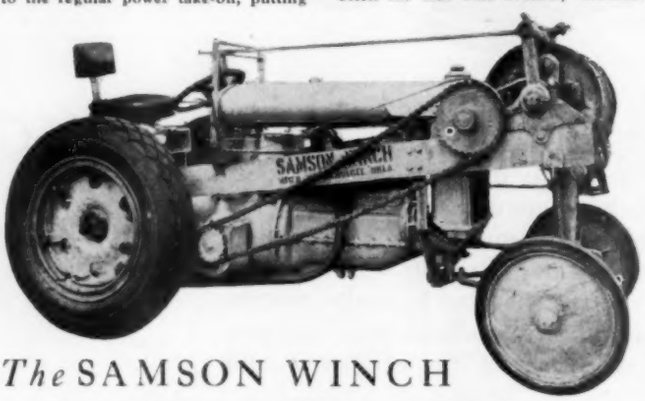
Walworth Company
Valves, Fittings and Tools for Steam, Water, Gas, Oil and Air.

Rossendale-Reddaway Company
"Camel Hair" Beltings, Belt Clamps.

Engineering Crews
for the installation of Pumping Powers and related equipment.

B&A BASCO

The Samson Winch is designed and built so as to change no part of the mechanism of the tractor. This leaves the tractor a powerful, floating power plant, transmitting its power direct to the Winch through a three-speed transmission connected to the regular power take-off, putting no additional strain on the Tractor. Winch located in the *front* of tractor, work is always in full view of the operator. Chaining of front wheels to ground is unnecessary as there is no tendency of tractor to lift up on the rear wheels as is so often the case with ordinary winches.



The SAMSON WINCH

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Built on the International or Fordson Tractor the Samson Winch meets every oil field requirement, more efficiently and economically.

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ft, td, flowing 350 bbl. T 23n, R 10e, sec 7, Sheeders O. & G. Co.'s 1, c ne, fsh tools at 2340 ft. T 22n, R 8e, sec 18, Devonian Oil Co.'s 1, nwc se, dr 2995 ft.

PAYNE COUNTY—T 19n, R 1e, sec 33, Gardner Pet. Co. et al's Ham 1, c sw ne, dr 4385 ft. T 18n, R 3e, sec 32, Garber, Pulse & Gloyd's Widows 1, nec se nw, sd 1200 ft.

LINCOLN COUNTY—T 17n, R 3e, sec 20, Willis O. & G. Co.'s Gunn 1, nwc se, sd 4677 ft. T 17n, R 5e, sec 27, Flynn & Morgan's Smith 1, sec ne nw, dr 1920 ft.

CREEK COUNTY—T 14n, R 7e, sec 11, Lima O. & G. Co. & Peters Pet. Co.'s Grayson 1, nwc ne ne, sand 4015-20 ft, hfw, pulling csg to plug; sec 16, Bu Vi Bar's Nero 1, c se ne, plugging, td 1589 ft.

LINCOLN COUNTY—T 13n, R 4e, sec 16, Bu Vi Bar Pet. Co.'s School Land 1, c ne se, sd 4500 ft.

TULSA COUNTY—T 17n, R 13e, sec 1, E. A. Hawley's Taylor 1, sec ne, spd and sd.

CREEK COUNTY—T 15n, R 9e, sec 33, C. G. Tibbens' J. Marshall 1, swc se sw, machine. T 14n, R 9e, sec 1, L. C. Wheeler's Morton 1, sec nw, lcn.

OKFUSKEE COUNTY—T 12n, R 10e, sec 8, Blakely .et al's Yarhola 1, swc se nw, sd 3157 ft. T 11n, R 10e, sec 4, Moose & Daniels' Stidham 1, swc nw, sd 622 ft.

MUSKOGEE COUNTY—T 15n, R 18e, sec 12, York O. & G. Co.'s G. Jobe 1, nwc se, cave 1345 ft. T 13n, R 17e, sec 34, Elk Drlg. Co.'s McKee 1, csl se se se, sd 160 ft. T 13n, R 18e, sec 33, L. T. Haynie's Linder 1, c se, sd 1700 feet.

OKMULGEE COUNTY—T 11n, R 13e, sec 27, G. N. Buzzard's Thompson 1, nwc ne ne, hfw in Wilcox 3720-3800 ft, hfw, d and a.

PITTSBURG COUNTY—T 9n, R 16e, sec 32, Pattison et al's McDuff 1, swc nw se, ¶3 at 4472-4525 ft, dr 4700 ft.

HASKELL COUNTY—T 9n, R 18e, sec 10, Marion Oil Co.'s Sanders 1, nwc ne sw, sd 2250 ft.

PITTSBURG COUNTY—T 7n, R 17e, sec 21, Quinton Spelter Co.'s Yoho 1, nec, show ¶1 2505-45 ft, dr.

LATIMER COUNTY—T 5n, R 18e, sec 15, Limestone O. & G. Co.'s Murray 1, swc, ur 10-in to 1600 ft, td 1700 ft.

CLEVELAND COUNTY—T 10n, R 2w, sec 22, Cromwell & Franklin's Donavan 1, c sw, sd 4706 ft.

POTTAWATOMIE COUNTY—T 10n, R 3e, sec 12, Sikes, Kilgore & Schaffer's Ives 1, sec, dr 4995 ft. T 10n, R 4e, sec 28, Central National Oil Co.'s Toney 1, swc, sd 3980 ft.

SEMINOLE COUNTY—T 10n, R 6e, sec 3, Furhman Pet. Co.'s Davis 1, swc se, lcn.

POTTAWATOMIE COUNTY—T 8n, R 2e, sec 24, Superior's Jones 1, swc nw, hfw 4314-20 ft, td, co. T 8n, R 4e, sec 1, Amerada Pet. Corp.'s Gravel 1, swc se ne, cemt 8-in 4102 ft, top Hunton.

CLEVELAND COUNTY—T 7n, R 1w, sec 15, Sooner Oil Co.'s Vandeveer 1, nec nw sw, 2994 ft, sd.

SEMINOLE COUNTY—T 7n, R 6e, sec 7, Simon & Beam's Palmer 1, nec nw ne, rig. T 7n, R 7e, sec 32, I. T. I. O. Co.'s Marshall 1, nwc sw, fsh 4765 ft.

POTTAWATOMIE COUNTY—T 6n, R 2e, sec 10, Davis, Detrick et al's McGahey 1, sec nw, sd 4988 ft. T 6n, R 5e, sec 16, T. B. Slick's School Land 1, sec, surface pipe 39 ft.

SEMINOLE COUNTY—T 6n, R 6e, sec 1, T. B. Slick's Moore 1, swc ne sw, ts 2750, td 2753 ft, 100 ft fluid in hole, ur 6-in csg, co; sec 12, T. B. Slick's Goebelt 1, nwc ne se, 4068-75 ft, hfw, sd. T 6n, R 7e, sec 5, Magnolia's Vierson 1, sec nw, ur 6-in 3600 ft; sec 36, Gardener et al's Harris 1, nwc se, ts 2837-2865 ft, hfw 3010 ft. td, plugging. T 6n, R 8e, sec 18, Carter's Phillips 1, nwc ne nw, owd, dr 4052 ft. T 5n, R 5e, sec 13, Shaffer O. & R. Co.'s Isaacs 1, c ne sw, td 3012 ft, hfw, sd. T 5n, R 6e, sec 13, T. B. Slick's Barrett 1, nec se nw, hfw 3845 ft, td 3850 ft, sd. T 5n, R 7e, sec 14, Mid-Continent's Harjo 1, sec ne ne, sand 2618-22 ft, ¶10, sd.

HUGHES COUNTY—T 5n, R 9e, sec 17, E. W. Whitney's Huddleston 1, sec sw, fsh 850 ft; sec 20, Noble O. & G. Co.'s Wickett 1, sec, fsh 1223 ft.

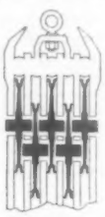
CADDO COUNTY—T 10n, R 12w, sec 28, Magnolia's Shelby 1, swc, dr 2156 ft.

BECKHAM COUNTY—T 9n, R 22w, sec 32,

Summarizing the principal features

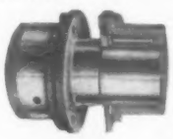
Speed

Light weight Block carries heaviest loads at maximum speed. Unnecessary to reverse drawworks to lower Block, as properly-applied bearings are anti-friction.



Construction

Latest engineering principles. Compact, yet with maximum bearing area; staggered construction. Fewest wearing parts. All parts rigidly constructed and of ample heft to permit overhauling many times, keeping Block "as good as new." Well balanced.

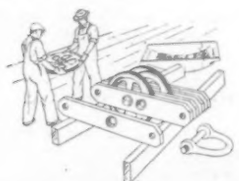


Bearings

Special Regan roller type anti-friction bearings. The pin and sheave being integral, revolve together. This permits entire surface of pin to be used, making it equal to that of race, resulting in an equally balanced bearing.

Workmanship

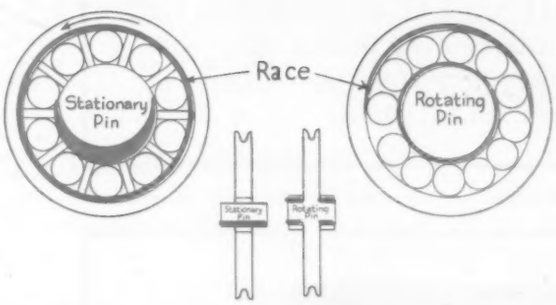
All contacting parts precision-machined, permitting of greatest rigidity, interchangeability and lengthened life.



Interchangeable Parts

Exacting standardization makes all parts interchangeable, allowing replacements to be made on derrick floor quickly, saving time and money. Smaller stock of parts can be carried. Each Block has high salvage value. The bearings are interchangeable with those of Crown Block.

Regan Traveling Block



Rotating Pin Permits Distributed Load.

The load being on the upper half of the bearing instead of on the lower half makes it unnecessary to use a separator as the rollers of the bearings automatically space, being fed, one by one, on the upward movement from the lower half of the bearing. In *stationary* pin Blocks the maximum wear is concentrated on only half of the circumference of the pin, the smallest member of the bearing, while the minimum wear occurs over the entire circumference of the *race*. This brings about rapid destruction of the pin. Such an inherent defect is not present in the Regan Block. The sheave pin rotates. The wear is evenly distributed over the entire circumference of the pin, which makes it practically equal to one-half of the larger circumference of the race.

Safety

All requirements of the Industrial Accident Commission are met and exceeded in many ways.

Reduced Wire Line Wear

Provision is made for ample tip or cant of the Block in any direction without rubbing of the wire lines on guards. Ribs are cast integral with safety guard, preventing wire line from jumping sheaves when Block lays on floor, eliminating injury to wire line. Practically no friction or wire line slippage.

Lubrication

Positive Alemite lubrication. A separate, easily accessible conduit for each bearing.

Materials

Steel construction throughout. All wearing parts special alloy steel, heat-treated. No cast iron parts.

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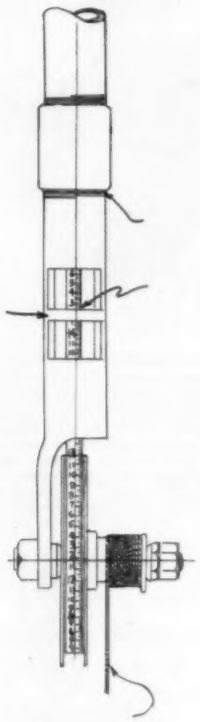

Close-up View of Reading Gauge

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Get away from the old style "tapeline and ladder method," by installing the new modern "Sure Shot" Automatic Tank Gauge. Many of the largest companies are now using it.

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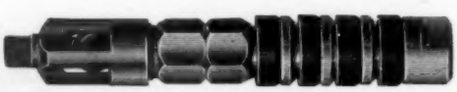

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Products That Cut Down Your Underground Overhead

O. & H. Petroleum Co.'s Barnes 1, nwc ne, owd, 300 ft o i h at 3080 ft, sd for control head.

GRADY COUNTY—T 9n, R 5w, sec 13, Remington's Fulton 1, swc ne, sd 720 ft.

CADDO COUNTY—T 6n, R 10w, sec 22, English Drlg. Co.'s Jacobs 1, nwc se, sd 3540 ft. T 6n, R 12w, sec 29, W. J. Hartley's Gilbreath 1, sec nw se, owd, sd 3394 ft.

GRADY COUNTY—Sec 21, Commercial Dev Co.'s Crisman 1, c ne ne, r u r.

COMANCHE COUNTY—T 3n, R 10w, sec 24, Jolly-Ogg Oil Co.'s Sparlin 1, sec ne, sd 2502 ft.

KIOWA COUNTY—T 2s, R 16w, sec 6, Landfair's 1, sec sw se, dr 2380 ft.

JEFFERSON COUNTY—T 4s, R 8w, sec 28, Amerada Pet. Corp.'s Emerson 1, nwc se sw, dr 20 ft.

PONTOTOC COUNTY—T 5n, R 4e, sec 12, Gillespie et al's Fleming 1, swc se, sand 2545-65 ft, swabbed 25 bbl and sd.

GARVIN COUNTY—T 4n, R 1e, sec 15, Dixie Oil Co.'s Perkins 1, sec nw, dr 4880 ft, hfw. T 4n, R 3e, sec 10, Garland Oil Co.'s Strickland 1, swc nw sw, ur 8-in.

PONTOTOC COUNTY—T 4n, R 4e, sec 10, Marland Oil Co.'s Lawrence 1, c sw se, dr 2130 ft. T 4n, R 6e, sec 13, American O. & R. Co.'s Wright 1, nwc ne ne, sd 1970 ft; sec 35, Bowles et al's Rayborn 1, swc se, sd 1320 ft. T 4n, R 7e, sec 8, J. C. Crosby & Hicks' Nowbaby 1, sec ne sw, sand 1044-54 ft, swab 60 bbl 34 gravity.

GARVIN COUNTY—T 3n, R 1e, sec 12, Magnolia's Vaughn 1, nwc sw nw, dr 5120 ft.

MURRAY COUNTY—T 1n, R 2e, sec 17, Revels & McGee's M. Wolfe 1, swc, dr 400 ft.

COAL COUNTY—T 1n, R 8e, sec 35, W. E. McGraw et al's Patton 1, swc se ne, dr 1110 ft. T 1n, R 9e, sec 24, Galbreath et al's 1, swc se, spd and sd.

CARTER COUNTY—T 4s, R 2w, sec 13, Roxana's Sarasota 1, sec, dr 3060 ft.

MARSHALL COUNTY—T 5s, R 4e, sec 11, Bilbo's Chapman 1, nec nw ne, sd 380 ft.

KANSAS

BARBER COUNTY—T 30, R 14w, sec 27, Rowland et al's Pickens 1, owd, nec nw ne, sd 2196 ft. T 31, R 12w, sec 17, Merriman et al's Winters 1, c e½, ur 3550 ft. T 33, R 12w, sec 19, Schaffer et al's Boggs 1, c sw, sd 5035 ft. T 33, R 13w, sec 2, Schaffer et al's Carter 1, c se se, fsh 3980 ft. T 34, R 13w, sec 20, Barton Oil Co.'s Blunk 1, c ne nw, 10-in at 2660 ft.

BARTON COUNTY—T 20, R 13w, sec 12, Everett & Wiley's Ward 1, nwc sw, sd 3940 ft.

BUTLER COUNTY—T 25, R 4e, sec 18, Wichita Drlg. Co.'s Joseph 1, nec se nw, dr 2644 ft. T 27, R 3e, sec 24, La Rob Oil Co.'s Baysinger 1, nec sw, rig. T 27, R 5e, sec 26, Cress, Frank et al's Bryson 1, nec, dr 1910 ft. T 28, R 8e, sec 21, Burford & Brimm's Ferris 1, sec ne sw, lcn. T 29, R 4e, sec 21, E. Wilcox et al's Holcomb 1, nec se nw, sd 1456 ft. T 29, R 8e, sec 8, Shawver et al's Nelson 1, nec se, dr 1665 ft.

CHASE COUNTY—T 21, R 7e, sec 9, Greener, Fowler et al's Carson 1, nec, fsh 2015 feet.

CHAUTAUQUA COUNTY—T 32, R 8e, sec 15, Roth & Faurot's Hamil 1, nwc sw nw, lcn. T 32, R 9e, sec 33, Manhattan Oil Corp.'s Payne 1, sec nw nw, sd 1210 ft.

CLARK COUNTY—T 31, R 23w, sec 16, Walker & Walner's Mitchell 1, swc ne, sd 450 ft.

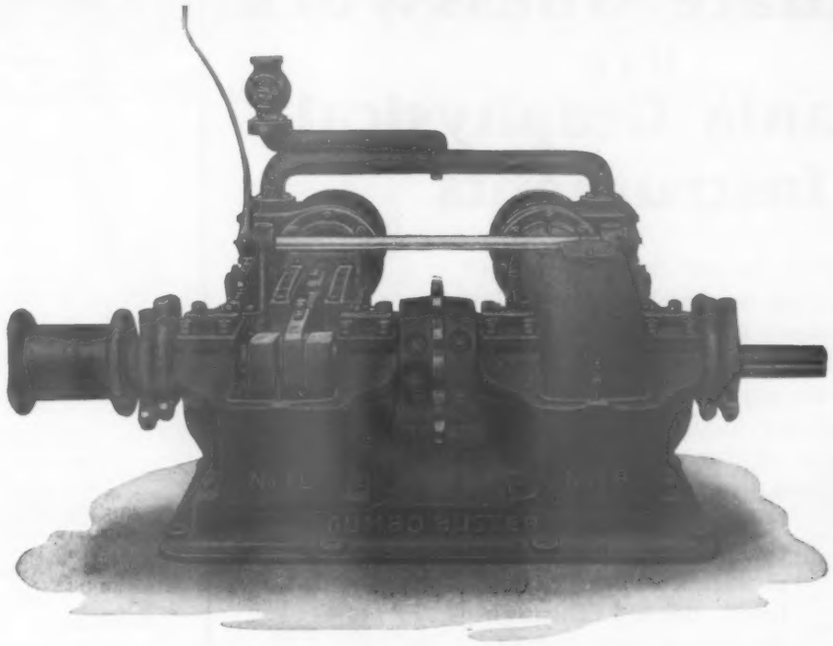
CLOUD COUNTY—T 6, R 4w, sec 6, Concordia O. & P. Co.'s Murdock 1, sec, sd 3590 ft.

COFFEY COUNTY—T 22, R 15e, sec 11, Clark et al's Douglas 1, nwc se ne, sd 920 ft.

COWLEY COUNTY—T 30, R 3e, sec 3, Vickers Pet. Co.'s Daniels 1, nwc ne, sd 1650 ft. T 30, R 6e, sec 20, Allison & Fitzwilliams' Manley 1, nec nw se, sd 1685 ft. T 31, R 4e, sec 14, Trees Oil Co.'s King 1, swc se ne, dr 2630 ft. T 31, R 5e, sec 4, Tatlock et al's Elliott 1, owd, nwc se, sd 3422 ft. T 32, R 6e, sec 12, Trees Oil Co.'s Eustus 1, sec nw, dr 1930 ft. T 33, R 4w, sec 4, White Oil Co.'s White 1, swc ne, spd. T 34, R 3e, sec 10, Shawver et al's Amen 1, nwc, dr 1910 ft.

DICKINSON COUNTY—T 16, R 4e, sec 2, Skow & Ritchey's Will 1, c nw nw, lcn; sec

The Gumbo Buster Twin Drilling Engine



1. LARGE CYLINDERS—AMPLE POWER

The large cylinders give ample power for lifting long strings of heavy drill pipe in the high speed of the draw works, permitting the engine to be run slower, thus increasing its life. Abundance of power permits heavy loads to be handled without unnecessary jerks and strain.

2. FOUR-BEARING, ONE-PIECE CRANK SHAFT

Crank shaft rests in four main bearings and is a solid double throw steel forging. Cranks are forged on quarters so there are no dead centers. This one-piece, heavy four-bearing crank shaft prevents vibration and assures rigidity under the most severe drilling conditions; it eliminates possibility of shaft kinking for it reduces the distance between the two inside main bearings, allowing only the necessary width for the split engine drive sprocket.

3. THE FIRST OIL BATH DRILLING ENGINE

Engine is enclosed and the working parts run in a bath of oil, preventing dirt and grit from getting into working parts and assuring constant lubrication at all times.

4. VALVE RIGGING ON OUTSIDE

The eccentric blocks and straps, the eccentric blades, the valves, steam chest and all valve mechanism are on the outside of the engine where adjustments can be easily and quickly made. Valve mechanism cannot be harmed should the engine chain break or jump the sprocket.

5. CAN BE RUN AS A SINGLE CYLINDER ENGINE

This can be quickly accomplished by slipping a regular size fly wheel on either end of the crank shaft which extends beyond both outside main bearings. This feature will not only reduce the shut down time for repairing engine, but may also prevent the loss of the hole should one cylinder of the engine break down while the drill pipe is in the hole.

6. CATHEAD

The cathead saves time and labor in setting up and tearing down or moving material.

7. RUGGED AND EFFICIENT

The sturdy efficiency of this engine (few repairs required) make it the most desirable and useful power unit for wildcat and foreign drilling.

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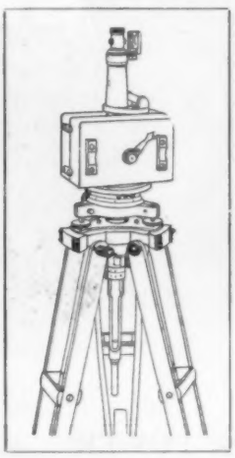

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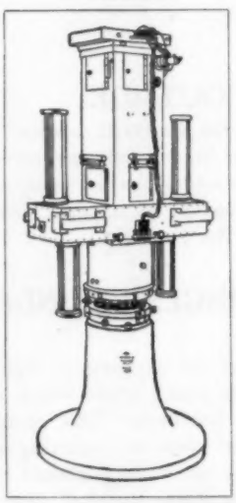

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18, Johnson et al's Schlessner 1, c sw ne, lcn; sec 23, Staats et al's Smith 1, nec se sw, lcn.

ELK COUNTY—T 28, R 13e, sec 22, Price et al's Thompson 1, cel se sw, sd 400 ft

ELLIS COUNTY—T 13, R 16w, sec 26, Tatlock et al's Leiker 1, nwc ne ne, sd 3425 ft.

FRANKLIN COUNTY—T 16, R 18e, sec 17, Smith, Thrice & Fisher's Owens 1, cel e½ e½, sd 1450 ft. T 17, R 17e, sec 25, Omar O. & G. Co.'s Bush 1, sec sw, lcn.

GEARY COUNTY—T 12, R 7e, sec 10, Pioneer Pet. Co.'s Chase 1, sec, r o g.

GREENWOOD COUNTY—T 24, R 13e, sec 4, Carnes & Bly's Smith 1, nec se, dry and abn, td 1801 ft. T 26, R 9e, sec 6, Kiskadden et al's Wilkerson 1, nec se sw, lcn. T 26, R 11e, sec 28, Paul & Parker's Wiley 1, swc se nw, spd and sd. T 28, R 12e, sec 1, Swanson et al's Mayes 1, sec nw ne, sd 1600 ft.

GRAHAM COUNTY—T 8, R 25w, sec 27, Gulf Coast Drlg. Co.'s St. John 1, owd, swc nw se, sd 3435 ft.

HARPER COUNTY—T 34, R 6w, sec 24, Amerada Pet. Corp.'s Mendenville 1, c se se, dr 4900 ft.

JEFFERSON COUNTY—T 9, R 19e, sec 13, Northern Counties' Edwards 1, sec nw nw, sd 2405 ft. T 10, R 17e, sec 19, Wichita Oil Co.'s Simpson 1, nwc sw sw, rig.

LABETTE COUNTYT 33, R 17e, sec 1, Cowell et al's Hornbeck 1, swc ne sw, sd 1375 feet.

MARSHALL COUNTY—T 4, R 7e, sec 4, Marshall Oil Synd.'s Finn 1, nwc ne ne, sd 2606 feet.

McPHERSON COUNTY—T 20, R 3w, sec 20, Polar Oil Co.'s Gray 1, c nw, spd and sd.

MARION COUNTY—T 18, R 4e, sec 20, Skow te al's Melcher 1, c ne se, ts 2400-01 ft, good show, ur 2408 ft. T 18, R 5e, sec 31, Anderson et al's Benthe 1, sec sw sw, top chat 2396 ft. T 19, R 4e, sec 17, Frank et al's Reed 1, nwc, td 2841 ft, pb to 2400 ft and sd. T 21, R 1e, sec 1, Sun Ray Oil Corp et al's Lehrman 1, swc ne se, dr 2940 ft.

MEAD COUNTY—T 33, R 28w, sec 9, Blackwell O. & G. Co.'s Lilly 1, c se, sd 3310 ft.

MORRIS COUNTY—T 14, R 7e, sec 32, Klein et al's Barber 1, sec nw, rig. T 16, R 9e, sec 22, Lambert et al's Southard 1, swc se, lcn. T 17, R 5e, sec 20, Graham et al's Nelson 1, nec se, dr 2195 ft.

NEMEHA COUNTY—T 3, R 11e, sec 19, Nemeha Oil & Gas Co.'s Myers 1, nwc, sd 3050 ft.

OSBORNE COUNTY—T 9, R 15w, sec 30, Davis et al's Pruter 1, sec sw, sd 2360 ft.

OSAGE COUNTY—T 15, R 15e, sec 3, Barber et al's Lease 1, c se se, sd 260 ft. T 15, R 16e, sec 27, West et al's Baley 1, swc ne, sd 600 ft. T 17, R 17e, sec 8, Mull Vit Dev. Co.'s Neil 1, nwc sw ne, dr 2931 ft.

POTTAWATOMIE COUNTY—T 9, R 8e, sec 11, Crawford et al's St. Mary 1, swc, sd 2290 ft.

RENO COUNTY—T 22, R 4w, sec 6, Danciger et al's Williams 1, nec sw se, rig.

RILEY COUNTY—T 10, R 7e, sec 20, Youker et al's Thierer 1, nwc, sd 3028 ft.

ROOKS COUNTY—T 8, R 16w, sec 14, Krueger et al's Poor 1, nec, spd and sd.

RUSH COUNTY—T 17, R 17w, sec 27, Valerious O. & G. Co.'s Schreverman 1, c nw, dr 575 ft.

SEWARD COUNTY—T 33, R 33w, Sec 14, Ash et al, Son 1, owd, nec, dr 3145 ft. T 35, R 34w, Sec 3, Wilson & Moore's Bowles 3, ne c; dr 1000 ft.

STAFFORD COUNTY—T 21, R 11e, Sec 23, Harper & Midco's Siffers 1, owd, nwc sw ne, sd 4030 ft.

SHERMAN COUNTY—T 7, R 40w, Sec 20, Hannson et al's Murry 1, owd, nec sw nw, sd 2800 ft.

SUMNER COUNTY—T 33, R 3w, Sec 22, Otstot et al's Bartlow 1, sec, sd 1860 ft. T 34, R 2w, Sec 23, Gypsy Oil Co.'s Douglas 1, nec se nw, tc 4493-99 ft, 16 bbls per hour. Shut in. T 34, R 3w, Sec 4, Jarvis et al's Wernecke 1, sec sw, sd 4205 ft. T 34, R 4w, Sec 11, Jarvis et al's Wycoff 1, swc nw, dr 4517 ft. T 35, F 1e, Sec 9, Otstot et al's Volker 1, nwc ne, rig.

TREGO COUNTY — T 13, R 21w, Sec 20, Central Commercial Oil Co.'s Ellis-King 1, nec sw ne, sd 315 ft.

WABUNSEE COUNTY—T11, R 10e, Sec 24, Doric Oil Co.'s Jones 1, nec sw, sd 1530 ft.

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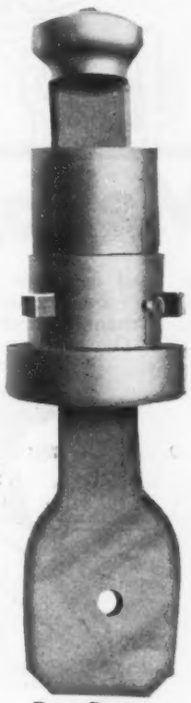

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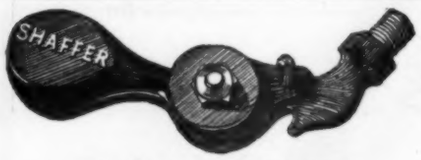

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Company, Well and Location	Initial Production Bbls.	Depth
Completions		
BOSSIER PARISH—		
C. F. Davis et al, Simpson 5, 14-16-12	*	2312
CADDO PARISH—		
Standard, Barry B-1, 11-20-16	*	1826
DE SOTO PARISH—		
The Texas Co., Grand Bayou P. Co. 5, 25-13-12	*	2460
LA SALLE PARISH—		
Wingfield et al, Gibson 3, 2-9-1e	*	1800

BIENVILLE PARISH—S. P. Borden's L. A. 2, 1-15-8, sd 500 ft. Humble's Anderson 1, 29-18-5, set 12½-inch 310 ft; Calhoun 1, 16-18-7, rig.

BOSSIER PARISH—Ark. Nat. Gas Co.'s Crawford 1, 6-22-11, rig; Van-Hoose B-2, 36-16-12, dk. Atlantic Oil Prod. Co.'s Bain 1, 31-23-11, arr to abn 3080 ft. J. R. Bahan's Kilgore 1, 31-23-11, dk. R. L. Crook's Larkin 9, 14-19-11, lcn. Doern et al's Bollinger 1, 9-22-11, sd 3900 ft. Ellis & Markley's Hunter 5, 14-16-12, dr 1658 ft. H. S. Goodwin's Tr.'s Mercer 1, 21-16-12, sd 1950 ft; Curtis 2, 36-17-13, dr 2850 ft. Wm. Gross et al's Stewart 1, 15-18-12, dk. Hamiter et al's Hamiter 1, 10-23-13, sd 1870 ft. Oil Ref. Corp.'s Blanton 1, 23-23-12, fsh 3085 ft. Magnolia Pet. Co.'s Cason 1, 1-22-12, set 8⅛-inch 3077 ft; Matlock 1, 25-23-12, set 13⅜-innch 430 ft. J. S. McCullough's Hodges 6, 25-16-12, wosr 1548 ft. Natural Gas Prod. Co.'s Floyd 1, 25-23-12, set 6⅝-inch 3065 ft. Northwest La. Gas Co.'s Barnett 1, 25-23-12, rig. Palmer Corp.'s Roberson 1, 25-23-12, wosr 3073 ft; Hodges B-9, 25-16-12, dr 1585 ft. Rogers — Jensen's Ledbetter 1, 7-17-11, dr 400 ft. R. O. Roy's Caplis 7, 25-16-12, wosr 1538 ft; Werner 1, 7-17-11, lcn. Triangle Drilling Co.'s Buekley 1, 9-20-13, rig. The Texas Co.'s Rose 2, 31-23-11, dk. Walker et al's Antrim 1, 28-22-13, washing to bottom 2850 ft. Woodley & Collins' L. & A. 3, 15-23-12, sd 3250 ft.

CADDO PARISH—Bee Oil Co.'s Muslow 1, 29-20-15, sd 1125 ft. J. W. Burton Tr.'s Caldwell 8, 18-21-15, dk. Belchic & Laskey's Sharp 4, 10-18-14, coring 1647 ft; Sharp 5, 10-18-16, lcn. W. D. Chew's State 6, 34-21-16, dk. Dixie Oil Co.'s Robertshaw 81, 13-21-15, sd 4148 ft; Robertshaw 90, 14-21-15, tested sw 4056 ft; Robertshaw 91, 14-21-15, dr 2188 ft; Robertshaw 92, 13-21-15, dr 4185 ft; Huckaby 4, 11-21-15, sd 4037 ft. Empire Gas & Fuel Corp.'s Nicholson 1, 33-17-13, rig. Greenwood Prod. Co.'s Cooper & Ellebre 1, 15-18-14, abn 3234 ft. Haynes Bros.' Spell 1, 15-21-15, sd 3911 ft; Spell 2, 15-21-15, sd 3092 ft. Magnolia's W. M. Bell 2, 6-17-16, coring 2050 ft; Dillon 18, 20-21-15, dk; Dillon 21, 23-21-15, lcn; Furrh 2, 28-18-16, rig; Robertshaw 22, 23-21-15, bailed dry 3898 ft; Hampton A-8, 15-21-15, tested sw 4022 ft. Pittsburgh O. & D. Co.'s Herndon 1, 15-21-15, pulled derrick in at 4017 ft. D. C. Richardson's Youree 6, 30-20-15, tested sw at 2305 ft. Shreveport Oil Corp.'s Muslow 2, 23-21-15, lcn. Standard Oil Co.'s Stiles 190, 27-21-16, sd 1984 ft. Simmons & Harrel's Meyer 1, 21-17-13, sd 650 ft. The Texas Co.'s Hutchinson 5, 15-15-12, dr 821 ft; Herndon 9, 14-21-15, pulling 4½-inch 3907 ft; Noel B-15, 14-21-15, sd 3979 ft. Tubbs et al's Hines 1, 16-14-16, sd 2730 ft.

CATAHOULA PARISH—Leonard Pet. Co.'s Knott 1, 32-11-8e, dr 2587 ft. Lochnager Oil Co.'s Beasley 3, 26-9-6e, coring 3020 ft. The Texas Co.'s Tensas Delta Lbr. Co. B-1, 4-10-6e, dk.

CLAIBORNE PARISH—ElDorado Chief Oil Co.'s Jones 1, 8-20-6w, dr 890 ft. Rudeseale et al's Meadow's 1, 20-21-7, pulling drill stem at 2920 ft.

DE SOTO PARISH—American Controlled Oil Co.'s Lanier 2, 5-11-11, sd 2800 ft. Carlton Drilling Co.'s Stevens 1, 12-11-61, dr plug 1530 ft. Dixie Oil Co.'s Jenkins 1, 9-12-11, arr to abn 6149 ft. R. O. Roys' Lee 1, 33-14-12, dk; Whittaker 1, 4-13-13, sd 950 ft; Tracy 1, 3-13-13, dr 670 ft. Reliance Drilling Co.'s Jones 1, 8-11-14, sd 3018 ft. Wingfield et al's Haygood 1, 18- 10-12, sd 2400 ft.

FRANKLIN PARISH—Pittsburgh O. & D. Co.'s Moore 3, 12-11-6e, sd 2501 ft. Louisiana Pet. Co.'s Tensas 1, 11-11-6e, sd 2503 ft.

GRANT PARISH—Swope et al's Fee 3, 18-9-1e, sd 1607 ft; Fee 5, 18-9-1e, set 6-inch at 1594 ft.

LINCOLN PARISH—H. M. Harrel's Griffin 1, 17-19-1w, dr 965 ft.

MADISON PARISH—W. S. Smith's Yerger 1, 51-16-14e, sd 1700 ft.

MOREHOUSE PARISH — Chas. Bennett's Davis 1, 21-20-4e, dk. Elbert Pet. Co.'s Morehouse Plg. Co. 1, 40-19-7e, sd 1010 ft. Gulf Ref. Co.'s Higginbotham 1, 42-20-7e, dr 225 ft. The Texas Co.'s Meyer 1, 15-22-7e, coring 2522 ft. United Carbon Co.'s Atkins 1, 26-20-5e, dk; Bastrop P. & P. Co. 1, 18-21-6e, dr 1250 ft; Davis 1, 21-20-4e, dk.

NATCHITOCHES PARISH — Lawson & Pharris' Crowell Lbr. Co. 1, 22-5-6w, sd 2758 ft.

OUACHITA PARISH—Amalgamated Co.'s Cole 7, 7-19-4e, dr 2025 ft. Hatcher & Evans' Fee 7, 21-19-4e, set 12-inch at 190 ft. Imperial O. & G. Co.'s Stubbs 5, 13-19-3e, dr plug 2114 ft. Jordan Drilling Co.'s Slagle 1, 48-18-4, dk; Pereboon 1, 32-19-4e, dr 50 ft. Nat. G. & F. Corp.'s McEnery 1, 21-19-4e, rig. Ouachita Nat. Gas Co.'s Smith 9, 29-20-4e, dr 1750 ft. Phillips et al's School Fee 1, 16-16-14e, set 15½-inch 212 ft. Palmer Corp.'s Cole 3, 36-20-44e, set 8-inch at 821 ft; Cole 4, 26-20-4e, dk. Pioneer O. & G. Co.'s Filhiol 2, 11-18-4e, lcn. J. O. White Tr.'s Schmidt 1, 3-15-4e, coring 1012 ft.

RAPIDES PARISH—Collins Bros. Allen 1, 25-5-1w, sd 2200 ft. Glenmore Pet. Co.'s Fee 1, 1-2-2w, dr 1930 ft. Minnesota Oil Corp.'s Wetty Mark 2, 13-5-4w, tested sw at 1700 ft.

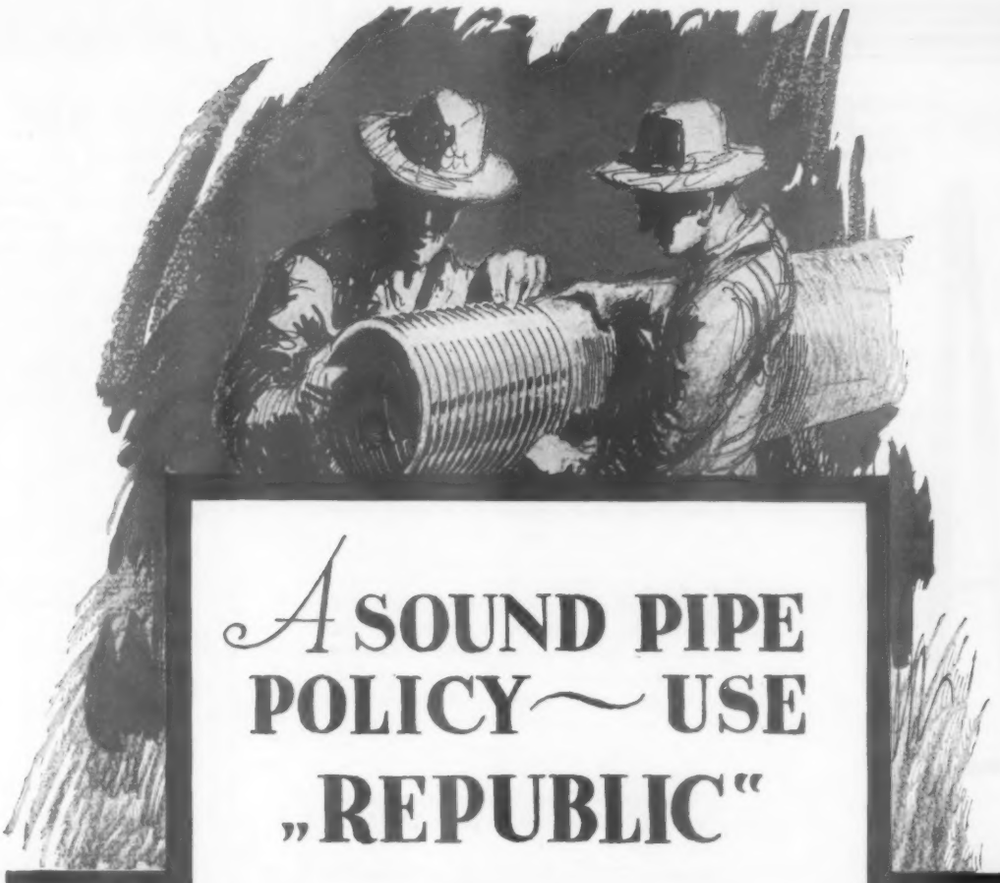
RICHLAND PARISH—Dixie Oil Co.'s McCoy 1, 29-16-6e, set 15½-inch 200 ft. J. M. Fuller's Boise 1, 33-16-6e, lcn. W. C. Feazel's Duff 1, 21-16-6e, dr 1160 ft; Noble 1, 36-16-5e, set 8-inch 854 ft. Gulf Ref. Co.'s Millsaps 1, 8-17-6e, r 313 ft; Rhymes 3, 28-17-6e, dr 2685 ft; Weymond 1, 20-18-6e, arr to resume drilling 2506 ft. Moody & Seagraves' McDonald 1, 9-15-5e, blg 2504 ft; Sartor C-1, 17-16-5e, dr 2170 ft; Sartor A-1, 8-16-6e, set 6-inch at 2300 ft; Sartor B-1, 9-16-6e, rig. Natural Gas & Fuel Corp.'s Sartor B-3, 19-16-6e, lcn; Sartor B-4, 18-16-6e, lcn; Thomason C-2, 21-16-6e, skidding dk; Thomason C-3, 21-16-6e, set 6⅝-inch 2272 ft; Thomason C-4, 21-16-6e, set 10-inch 900 ft. Noe & Meredith Tr.'s Broughton 1, 4-15-6e, dr 2360 ft. Oliver & Master's Hatch 1, 2-15-5e, set 6-inch 2290 ft; Hatch 2, 2-15-5e, dr 2291 ft. Ruston Drilling Co.'s Sartor B-1, 9-16-6e, dk. Southern Carbon Co.'s Sartor 3, 18-16-6e, dk; Sartor Jr. B-1, 9-16-6e, rig. Woodley Pet. Co.'s Osborne 1, 3-17-7e, set 6-inch 2350 ft.

SABINE PARISH—Doern et al's Pickering Lbr. Co. 1, 17-4-11, r 2025 ft. R. L. Gay's Mansfield 1, 15-7-14, dr 1713 ft. The Texas Co.'s Hamlin Est 1, 28-10-13, sd 145 ft. Magnolia's Hall 1, 33-10-13, rig. Zwolle O. & G. Co.'s Bowman Hicks 7, 11-7-14, sidetracking, testing tool 3781 ft.

UNION PARISH—Barbour Oil Co.'s Tugwell 1, 21-22-1e, sd 2425 ft. Carter et al's Security Trust 1, 7-23-1, wosr 2254 ft; Hudson 1, 7-23-1e, sd 102 ft. Industrial Gas Co.'s Hill 2, 9-20-3e, set 6-inch 2070 ft; Lewis 1, 14-20-3e, rig; Simpson 1, 9-20-3e, dk. Moody & Seagraves' Robertson 1, 34-22-3e, set 6-inch 2082 ft. Ouachita Nat. Gas Co.'s Hamilton 1, 22-19-1e, dr 190 ft. R. W. Rhodes' Upshaw 1, 14-23-2e, dk. Ruston Drilling Co.'s Steele 1, 36-20-3e, set 6-inch 2167 ft. United Carbon Co.'s Peak 1, 7-20-4e, lcn; Trimble 1, 19-20-4e, lcn.

WEBSTER PARISH—Ark. Nat. Gas. Co.'s Mitchell 1, 30-23-9, dk. North Central Texas Co. 1, 36-23-10, arr to test 3100 ft. Humble O. & R. Co.'s Webb 2, 14-21-10, set 15½-inch 460 ft; Davis 6, 14-21-10, rig. S. A. Lane's Miles 1, 24-17-9, sd 1469 ft. C. H. Lyon's Munn 1, 1-22-10, set 12½-inch 300 ft; Porter Wadley 1, 36-23-10, arr to deepen 2700 ft; Porter-Wasley 2, 29-23-9, dr 1000 ft. Morris et al's Lewis 1, 15-23-9, set 12½-inch 150 ft. Magnolia Pet. Co.'s Bailey 1, 29-23-9, dr 1170 ft; Camp 1, 26-23-10, set 13⅜-inch 295 ft; Aarnes Cox 3, 22-21-10, dk; Mixon 1, 22-21-10, fsh 4212 ft; Wise 1, 30-23-9, lcn; Cole 1, 27-21-10, dr 4382 ft; D. G. Cox 1, 22-21-10, set 6⅝-inch 4329 ft; Mitchell 1, 31-23-9, dk. Ohio Oil Co.'s Crichton 2, 21-21-10, dr 4496 ft; Bodcaw 38, 15-21-10, blg 4649 ft; Hodges 2, 23-21-10, lcn. Palmer Corp.'s Mixon 1, 22-21-10, dk. Sun Co.'s Haines 1, 30-23-9, dr 1950 ft. Woodley Pet. Co.'s Cox B-1, 4590 ft.

WINN PARISH—Ohio Oil Co.'s Rolen Account 1, 5-12-1w, dr 4825 ft. H. M. Roark's Southern Mineral Co. 3, 9-11-3w, sd 1200 ft.



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INDEPENDENCE, KANSAS

The Principles of Air Lift Pumping

(*Continued From Page 74*)

increases in area toward the outlet, increases the capacity of the well very much. An exlpanation of this effect is also easy. As the air bubbles rise in the discharge pipe, the liquid column above them diminishes, the pressure to which they are exposed decreases, and they expand, increasing greatly the volume of the air-liquid mixture. To pass this bulkier mass through the upper end of a plain pipe, the velocity of the mixture must become greater and greater as the upper end of the pipe is approached. Now the frictional resistance of the pipe increases rapidly as the velocity of the mixture rises; so the plain pipe opposes flow much more than the tapered pipe, whose increasing cross-section can pass the expanding mixture at a moderate velocity. This opposition of the plain pipe naturally decreases the effectiveness of the submergence and diminishes the flow—an effect which can be avoided by using the tapered pipe. The larger the submergence, the more the bubbles will expand and the more desirable the tapered pipe becomes.

Figure 4 shows that for a given lift, the air consumption per gallon can be decreased by increasing the per cent of submergence.

Figure 5 shows that when using the range of per cent of submergence recommended by the manufacturer publishing this data, the air consumption per gallon increases rapidly with the lift.

Figure 6 shows that for various lifts both the range of allowable submergence and the best per cent of submergence decrease with the lift. This is a fortunate circumstance for the oil operator, who will often find a high per cent of submergence impossible.

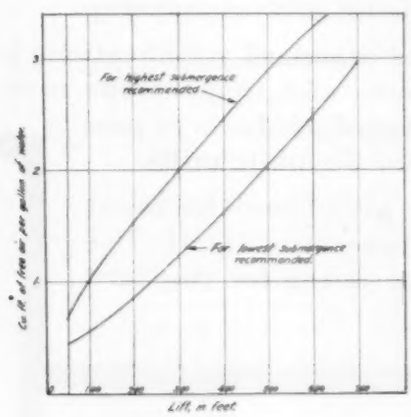

Figure 5.

The expression "best per cent of submergence" probably needs explanation. The commercially best per cent of submergence is the one which makes the cost per gallon lifted the least sum. Increasing the per cent of submergence decreases the cubic feet of air needed per gallon (see Figure 4), but it also increases the discharge pressure. Since the cost per gallon lifted depends most on the power consumed by the compressor, the compressor manufacturer usually recommends that per cent of submergence which makes the compressor's horsepower hours the least.

The recommended submergences shown in Figure 6 are for water pumping. What the best submergences are for oil, no one seems to be willing to say. In data reported from a number of Seminole wells,

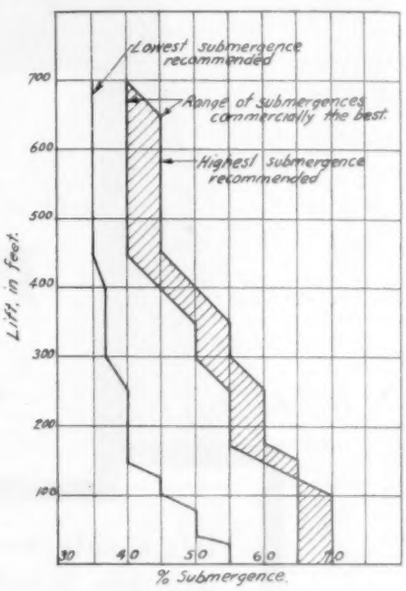

Figure 6.

the running submergence used in several 4000-foot holes was about 15 per cent, or about the maximum possible amount, the air inlet being within 50 feet of the bottom of the hole. Probably the operators of most oil wells are forced to use the maximum submergence possible, with little or no chance to even consider the most economical submergence problem.

Although the curves show the probable air consumption of water wells, they cannot be expected to be correct for oil wells. In fact, very little reliable data of this sort seems available. The air consumption from four Seminole wells reported recently seem to bear no relation to their submergence. This submergence can be calculated roughly from the minimum working air pressure, which should fall as the decline of the well causes the submergence to drop. These four wells are quite similar, with about 4200 feet of lift; but in two of them the air consumption per gallon increases as the submergence falls, in one the air consumption is about stationary, and in one the air consumption increased, then decreased. The quantities of air required per gallon also varied between seven and 100 cubic feet.

Perhaps it is unreasonable to expect enough agreement between oil well pumping tests to establish workable general rules relating submergence, lift, and air

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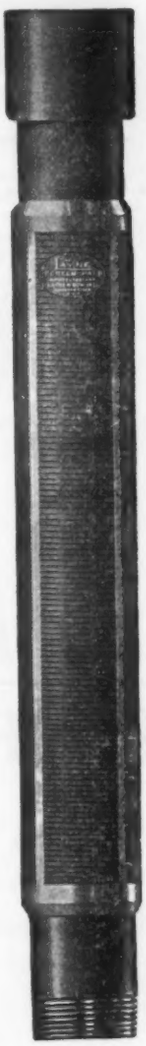

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419 PEOPLES GAS BLDG., CHICAGO

Say you saw it in The OIL WEEKLY

consumption. In each of the four cases mentioned above, some natural gas was discharged with the air. As the oil rose in the discharge pipe and as its pressure fell, this natural gas coming out of solution certainly aided in lightening and lifting the mixture, thus decreasing the required amount of compressed air.

Perhaps this released gas is the cause of discordant test data. Certainly in these four cases the total quantities of air and natural gas emerging with each gallon of oil agree better with the expected relation between gas consumption and submergence. In three cases of the four, this total quantity of gas per gallon increased with lowered working pressure and correspondingly lowered submergence. This result would be expected from a consideration of Figure 4. The actual quantities of gaseous mixture (air and natural gas) discharged with the oil in these tests vary between 22 and 120 cubic feet per gallon.

The gas brought into the well with the oil will certainly affect the air requirements, but how great this effect will be seems unpredictable. The amount of dissolved gas will vary from field to field; and in a given field, the quantity of gas made in the well can be expected to change as the pressure in the oil sand fails. A decrease in natural gas supply as the production falls off would mean a need for more air from the same cause, coupled with a further increase due to falling submergence. To make matters worse, no two wells will produce the same amount of gas in the first place, and if compressed natural gas is used instead of air, the greater and more variable solubility of gas in oil as compared to air in oil complicates still more the problem of selecting the compressor capacity needed.

The penalty for a bad guess resulting in too little air supply is apt to be a severe one. Failure to provide enough air may allow adjacent wells to drain off the flush production; so in this problem, as in many others, the oil producer is forced by his inability to predict working conditions to provide an undesirably large factor of safety in his equipment.

But in spite of his inability to predict accurately the conditions under which the air lift must work, the wise producer will not ignore the general principles under which it operates; for as working conditions become known to him, an application of these principles can be made to increase production or to decrease pumping costs.

HEYDRICK'S NEW MAPS
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Combination Maps

Descriptions and prices on application.

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Integrity

Two business men suffered equal disasters. In each case they applied to the banks for money to carry on. To one was given practically unlimited credit . . . . to the other, no aid whatsoever. The answer? Integrity. The first man could be trusted, the second man was "sharp." Look well to the people with whom you do business—let not their integrity be clouded with the least suspicion.

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In either case you are ahead. We can think of no fairer way of suggesting a trial of the NO-CO-RO Drop & Seat; and realizing some of the savings that users have reported to us—eight months' service in a well once pulled every week, to cite one example—we know of no improvement you can make that will return such rich rewards.

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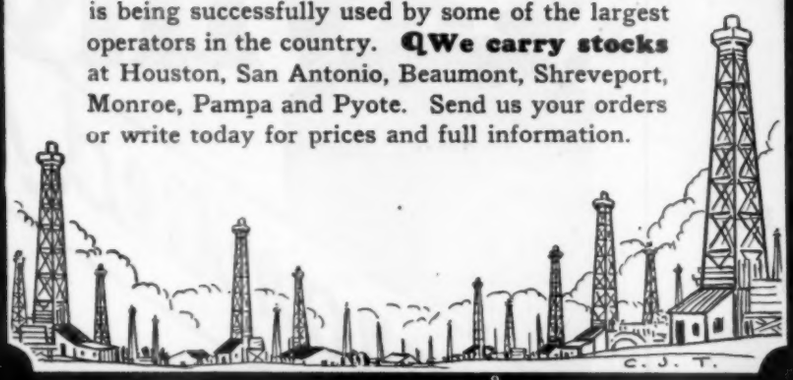
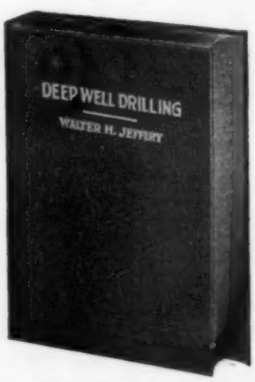


THE LARGEST SUPPLY HOUSE IN THE SOUTHWEST

PEDEN IRON & STEEL CO.
HOUSTON – SANANTONIO – SHREVEPORT

Second Revised Edition
Deep Well Drilling
By WALTER H. JEFFERY



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One Hundred Thirty-One Pages New Matter Added

A comprehensive handbook covering in detail modern practices of well drilling by the standard or cable tool and the hydraulic rotary system

During the few years that have elapsed since the publication of the first edition of "Deep Well Drilling" there have been so many improvements in well drilling methods and equipment that it was found necessary to practically rewrite the book for this second edition. This book furnishes complete information on drilling and the use of tools and equipment necessary to complete wells efficiently.

This book is a refernce work for the engineer and the student and a handbook for the practical driller. Written by a man who has familiarized himself with his subject through a lifetime association with it. 662 pages, illustrated, flexible binding. Price Postpaid $6.00.

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P. O. BOX 1307, HOUSTON, TEXAS

Empire "New Suggestion Plan" Proves Profitable

ALTHOUGH in comparative infancy within the organization, the management of the Empire Gas & Fuel Company (Delaware) and subsidiary companies, of Bartlesville, Oklahoma, sees a tangible benefit accruing from the operation of its New Suggestions Plan through which employes, who submit workable new ideas, designed to facilitate operation, effect economies, etc., are rewarded with monetary prizes.

The plan was formally placed in operation on July 1, 1926, and, during the first 18 months 89 new suggestions were rewarded with cash prizes, ranging from $5 to $100.

Awards are made on a three-fold basis —on acceptance of the plan, for the best quarterly plan and for the best yearly plan. The amount of the award is based wherever possible, on 10 per cent of the estimated yearly saving made possible by the suggestions. However, this 10 per cent basis cannot be rigidly adhered to, particularly in instances where suggestions deal with safety first devices. In fact the first yearly award went to the originator of a conservation and safety "bull dog" for repairing gas pipe lines. While this plan effected some economies, it was valuable principally because it helped lessen danger of injuries to workmen on pipe lines.

This device provides a connection between ends of a gas pipe line that is "down" for repairs. Through a slip arrangement, the "bull plug" can be lengthened or shortened to fit sections of varying length and has the advantage of reducing gas leakage and lessening danger from blow-outs under the old system wherein the "bull plug" was blocked in place with timbers.

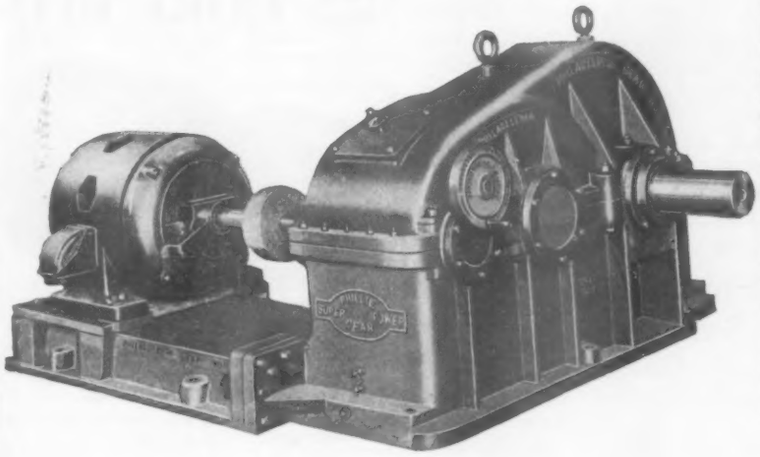
Second award for the first year went to an employe of a company refinery for devising a means of separating a mixture of oil, water and sediment, which comes from the refinery traps. It is estimated that 60 additional barrels of oil wasted under the old system, are recoverable each month through the new plan which also lessens the need of cleaning the settling tank as frequently as before.

Third prize went to an employe of the oil production division for suggesting a special oil agitator for use in wooden storage tanks in the field. This device, constructed entirely from waste materials, materially aids in the operation of field storage.

Yearly awards are $100 for first prize, $75 for second and $50 for third. Quarterly awards are made by divisions of the company and carry first and second prizes of $15 and $10, respectively.

Approximately one out of every three suggestions submitted is rewarded. Thus, it will be seen that nearly two-thirds of the employes' suggestions either are unworkable or are duplications of something already in use. Nevertheless, the company management is convinced of the plan's worth, both as to effecting economy

Turn the Handwheel and Change the Speed!



No need to take off the heavy top half of the housing and remove a set of gears and replace them with another set on a Philadelphia Oil Well Pumping Unit when you want to change speeds. Just a turn of the Handwheel and there you are.

But that s not the only feature that makes them popular—even though it is a great labor and time-saver. They have nearly 50 years of gear-making experience built into them and were designed to fill a distinct need for a Pumping Unit that would stand up under severe service.

Made of the finest materials, with accurately cut gears mounted on over-size shafts, turning on almost frictionless Timken Bearings, they merit your investigation.

Would you like our new Bulletin?

Note the convenient HANDWHEEL for speed changes. This HANDWHEEL is so Marked, that you can readily ascertain which speed is in use at any time.

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and as to stimulating employe interest in company affairs.

The Empire Gas & Fuel Company, which is the chief petroleum and natural gas subsiduary of Cities Service Company, reaches approximately 5000 employes with its New Suggestions plan. Subsidiary units of the Empire Gas & Fuel Company whose employes are embraced with the plan, includes the Empire Oil & Refining Company, Cities Service Gas Company, Cities Service Oil Company, Empire Pipe Line Company, Empire Gas & Fuel Company (Maine), New Processing Oil Company and the American Pipeline Company.

Making Final Plans for Scout Meeting

Tulsa—The board of directors of the Mid-Continent Oil Scouts Association will meet at Cushing March 31 to make final plans for the annual convention scheduled for April 27-28 at Guthrie, Rex Dawson, chairman of the board, announced late last week. Officers of the association, besides Dawson, Carter Oil Company, are C. E. Savage, Carter Oil Company, president; C. E. Hewitt, Mid-Continent Petroleum Corporation, first vice president; R. T. Miller, Sinclair, second vice president; Simon Crites, Phillips Petroleum Company, secretary and treasurer. The board of directors includes the officers and the following men: H. H. Theoming, Gypsy Oil Company; C. R. Piggott, Pure Oil Company; C. A. Barlow, Carter Oil Company; H. N. Guthrie, I. T. I. O. Company; G. W. Greenlee, Mid-Continent Petroleum Corporation, and C. W. Michaels, Shaffer Oil & Refining Company.

Muskogee Townsite

Tulsa—A remarkable shallow strike in the Muskogee townsite last week might result in considerable play in city block drilling among individual operators. Decius & Garrett's Townsite 1, located in Lot 3, Block 16, in the southeast of the northeast of the southwest of Section 16-14-19, is rated as being good for 200 barrels from 505-22 feet. On penetrating the sand the well flowed by heads at half-hour intervals March 22.

HARRY A. CAMPBELL F. LEE STEWART

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Standardized, precision manufacture insures perfect interchangeability, and when cutter is worn anyone can fit a new head in a very few moments. Exceedingly valuable in fields where facilities for rebuilding are not readily available.

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Eastern Scores Again

Shoots well 6235 feet deep.

A few months ago we shot for Roxana Petroleum Corp. the deepest well that ever had been shot up to that time, depth 6165 feet.

January 18 we broke this record by successfully shooting for Wentz Oil Division the deepest well ever shot, Williams No. 1, in Logan County, Okla., at the record depth of 6235 feet.

Both of these wells were shot by W. F. Knode, EASTERN EXPERT.

THE EASTERN TORPEDO OF OHIO CO.

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Goes to New York

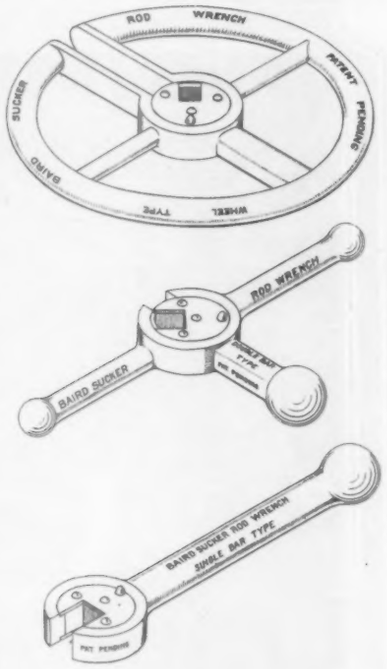
THAD L. PUTNAM

Thad L. Putnam, formerly Gulf Coast district representative for the W-K-M Company, Inc., has been appointed export manager for the company, with headquarters in New York.

An office and display roo mis maintained at 74 Trinity Place, New York, and Mr. Putnam is prepared to provide full data with reference to W-K-M tools an dequipment at all times.

Opening an export office by the company was influenced by its constantly growing export sales on all lines, including oil field equipment, pipe line equipment and pipe cleaning machine equipment. One order shipped in March to the Russian government, amounted to more than $75,000.00, and included fourteen W-K-M Pipe Cleaning Machines, fourteen W-K-M Pipe Handling Booms and fourteen W-K-M side winches.

BAIRD
Sucker Rod Wrenches



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Spins the joints up and puts the "Snap" there in half the time.

Locks the rod in the wrench and operates for either right or left turn without removing or reversing.

All parts interchangeable and replaceable.

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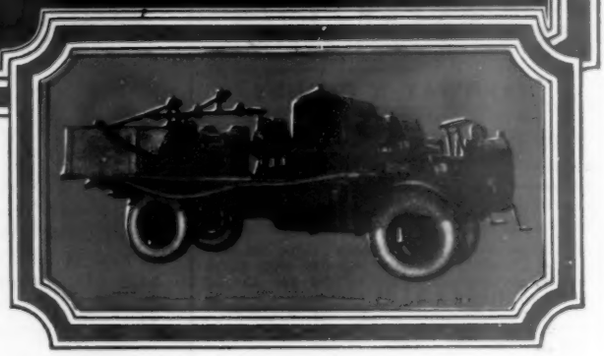


Now Available, in Limited Number for Export Shipment

Here is the last word in cementing units—the highest development yet attained in scientific oil well cementing equipment.

The outfit as shown above is complete, compact and efficient. It has the power to go anywhere—carries with it pumps, mixer and all necessary equipment—and is sturdy enough to give years of service.

In the United States the Halliburton Cementing Outfit is used exclusively in the Halliburton process of oil well cementing. In foreign fields it is available in limited numbers for outright sale.

A letter sent to our headquarters at Duncan, Oklahoma, U. S. A., will bring full information.

The improved Halliburton Cementing Outfit is an outgrowth of years of experience in conducting the safest, most scientific, and most widely used cementing process in the world. It is fully equipped and ready for service. Companies outside the United States are invited to ask for full details.

HALLIBURTON

OIL WELL CEMENTING CO.

Duncan, Oklahoma

NEW EQUIPMENT, CATALOGS, BULLETINS, BOOKS

Heavy Duty Radiator

YOUNG RADIATOR COMPANY

Young Radiator Company, Racine, Wisconsin, announces a new heavy-duty radiator especially recommended for oil field service.

The Young radiator core, a feature of the radiator, is an adaption of the tubular radiator principle. The tubes are flat and of special heavy-duty design. Large channels give unrestricted flow of water, according to the manufacturer. Fins are of a self-cleaning type, tapered so that air currents pass firmly against them.

Tubes are of heavy-gauge brass or copper with lockseamed joints.

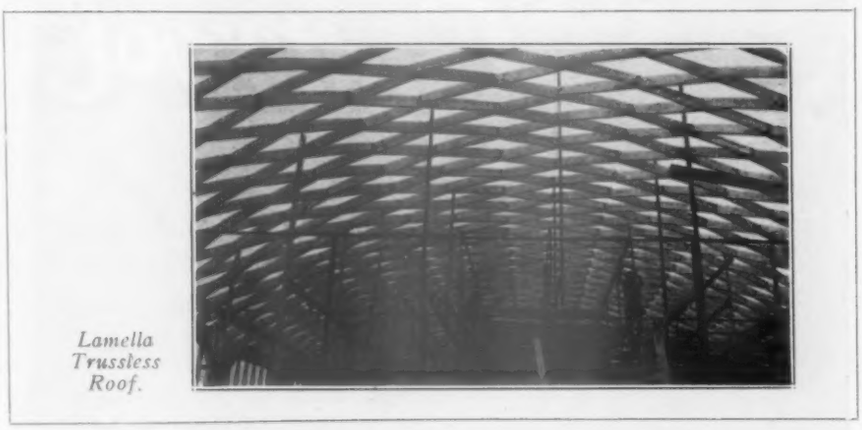
Another special feature of the radiator is the "turbulating impressions," which cut edges, between the tubes and at the front of the core. It is said that these cause a turbulating action of air currents and cause more rapid heat dissipation from the cut edges.

The header or tank units are assembled to the tubes by a special pressing operation which draws the material deeply and makes an extra long contact over the tube. In addition to this heavy construction, an auxiliary header-plate is used in the ends of the core where the headers are attached.

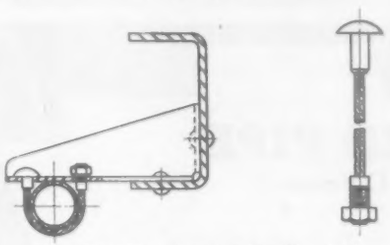
The special type shown in the accompanying illustration is a sectional radiator made with cast tanks and side members and removable cores. Large ports in the top and bottom tanks register with castings on the core ends.

This type is recommended for use on compressors, stationary power units, Diesel engines, and in remote territories where a break-down would be especially serious. The radiator can be used with one or more sections removed, if damage occurs; and replacing the damaged section takes only a few minutes.

More information may be obtained from the company, by request.



Lamella Trussless Roof.



Tru-Lay-Tru-Lock Flexible Bolt

Flexible Wire Rope Bolt

AMERICAN CABLE COMPANY

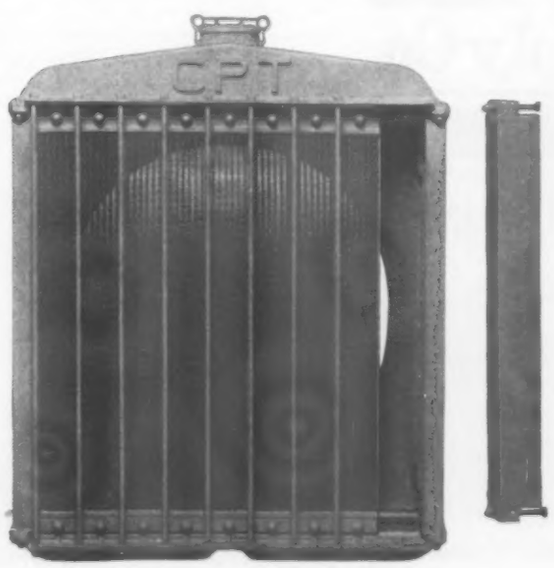
Through the development of the preformed type of wire rope which makes possible the attachment of fittings by the processing method that compels the fittings to become an integral part of the rope, the American Cable Company, 215 N. Michigan Avenue, Chicago, has perfected the Tru-Lay-Tru-Loc flexible bolt.

The principle on which this new flexible bolt rests is the preformed type of wire rope. Preforming the wires and strands to the exact helical shape they must assume in the completed rope results in a cable that does not require seizing, but may be cut like a rod. This type of rope permits a close fitting attachment to be slipped over the unseized end of the rope and to be processed so that the steel of the fitting cold flows into the interstices of the rope and thus becomes practically an integral part thereof. Such fittings can be threaded for a nut or capped for a head.

The flexible bolt which has resulted from these developments is available in varying lengths.

The bolt may be used in countless places wherever rigid U-bolts are impracticable. They have been used as auxiliary hangers for power shafts, suspension brackets for overhead piping, shackle bolts, for scaffolding and tackle on various parts of machinery, and in other places where semi-flexible connections are necessary.

More information is available from the company, by request.



Young Heavy Duty Radiator.

New Trussless Roof

LAMELLA TRUSSLESS ROOF COMPANY

Lamella Trussless Roof Company, 801 Kirby Building, Houston, recommends its new type of trussless roof for oil field warehouses.

The roof is constructed through a combination of two principles, that of the arch and that of a network. The utilization of these two principles permits the use of short, uniform pieces of lumber, called Lamellas.

Lamellas are usually made of two by eight, two by ten, or two by twelve pieces of No. 1 Southern Pine lumber, varying from seven to nine feet in length. Lamellas are joined together in net-like fashion to cover in one clear

Gott Water Can
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Built to last—you will always be assured of a fresh supply of pure water, when you have a GOTT. Made in 1½, 3, 5 and 10 gallon sizes. Order now from your supply store.

H. P. GOTT MFG. CO.
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BUY USED PIPE
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8—6" used Standard Rigs	4—45 H P used Boilers
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8—12x12 used Steam Engines	Used Line Pipe 2" to 8" Inc.

We buy abandoned pipe lines and oil wells. If you have any to sell, communicate with us before you dispose of them.

BRANCH STORES
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EASTERN HEADQUARTERS
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A hotel where there is the happy combination of excellent food and courteous service.

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655 Rooms and every Bedroom with Private Bath
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span, large spaces, thereby forming a uniform wooden arch. There are right and left Lamellas and all are drilled at the ends and at the center for the purpose of receiving the bolts. They are bolted together by standard steel bolts protected by special spring washers.

The joints adjust themselves automatically to all possible shrinkage. They can be readily unscrewed and the roof dismantled if desired.

By the use of buttresses, bents, etc., tie rods may be eliminated in the roof thereby producing a maximum of head room with a minimum of side wall height. Electric conduits and wires or even lights and fans can be suspended from the tie rods.

Further particulars may be obtained by request from the company.

Truck Catalog

The Wichita Falls Motor Company of Wichita Falls, Texas, has recently issued a new catalog on their Oil Field Special truck that has been specially designed and constructed for oil country usage. This catalog is profusely illustrated and presents detailed information, pictorially and in condensed data, of the various working parts and operation of the machine. A copy may be obtained by communicating with the company.

New Unit Padlock

UNIT LOCK COMPANY

The Unit Lock Company, Tulsa, Oklahoma, is introducing a new padlock called the Unit Lock. According to the manufacturers the lock has few working parts and no rivets are used in the construction. Further details will be supplied on request.

International Opens New West Texas Office

Tulsa, Okla.—A new branch store to serve the company's business in the Winkler County district in West Texas has been opened at Wink by the International Supply Company with general offices here. The Wink store will be accessible to operators in the Hendrick pool and in other areas in that territory. International Supply now maintains branch stores at Pampa, McCamey, Borger, and Poyote in Texas with a division office at Fort Worth in charge of I. H. Atherton.

H. M. Robinson is now agent with the Black Wire Rope Company in Oklahoma and Kansas, having recently resigned a position with the American Cable Company of which he was a representative for the past four years.

C. P. McKeizer who formerly represented the Western Iron and Foundry Company of Wichita in the Tulsa territory now is in charge of sales in that district for the Shigley Trailer Company, also of Wichita, and for the Utility Manufacturing Company.

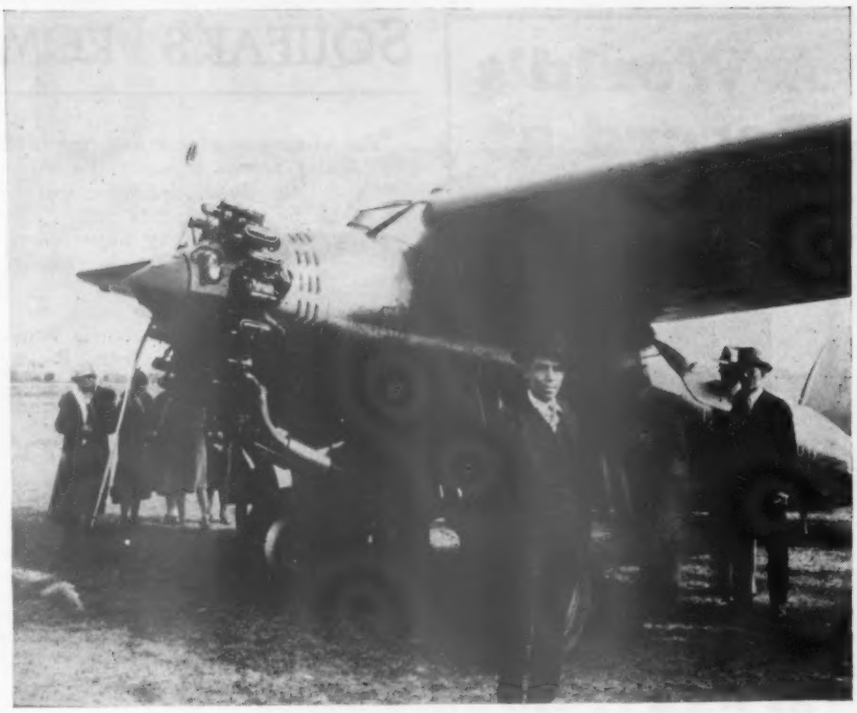
Butler Steel Hangars Serviced by Plane

The Butler Manufacturing Company has purchased an airplane to be used in serving those in need of steel airplane hangars and steel buildings. J. B. Bogart, airport engineer for the Butler company, will use the new plane in making his calls, and will consult with city authorities or individuals without charge. From the standpoint of the manufacturer, Mr. Bogart knows what can be done with a steel building, and he is well qualified to make recommendations to meet the needs of the public. His experience as an airport engineer includes consulting with the New York Municipal Airport Committee, the Detroit Million Dollar Project, and committees of the cities of Cleveland, Philadelphia and Jacksonville. He is a post-war graduate of the Army Air Corps School at San Antonio.

The accompanying picture shows the new Butler plane just before its maiden trip was made. E. E. Norquist, president and general manager of the company, is shown shaking hands with W. A. Knapp, vice-president in charge of sales; and in the rear of the plane is J. B. Bogart, the airport engineer.

"Our Company feels," said Mr. Knapp, "that in buying an airplane we will give a service to the public that will greatly aid it in its airplane hangar and building problems."

F. C. Merritt, vice-president of the Elliott Core Drilling Company of Los Angeles, returned March 12 from an extended trip through the Texas territory. His itinerary included stops at the Houston and Beaumont Elliott branches as well as a tour of the Texas producing fields. The Elliott company maintains branches at various strategic points throughout Texas and the Mid-Continent fields.



Erle P. Halliburton and "The Tester"

Halliburton Uses Plane on Tester Service

For the purpose of servicing its Testing Device on drilling operations far removed from the company headquarters, the Erle P. Halliburton Company has recently purchased a Lockheed Monoplane at a cost of approximately $15,000. By using the plane, the company will be enabled to save the oil operators considerable shutdown time waiting on the testing tool to arrive to make the test. An operator who desires to have a sand tested can telephone the Halliburton headquarters at Duncan, Oklahoma, and by the use of the plane a testing tool can be taken to the drilling location in a very short time. The plane has a maximum speed of 140 miles per hour and will easily average 100 miles. Since it costs an operator around $10 an hour for shut-down time on a rotary drilling rig, material saving may be made for him through the use of the plane.

Earle P. Halliburton and his pilot were in Houston recently, and took many of the friends and patrons of the company for rides in the new plane. It is of the cabin type and will accommodate six passengers. The maiden flight of the plane was from Los Angeles to Duncan, Oklahoma, with Mr. Halliburton making the trip with his pilot. Before leaving Los Angeles the monoplane had been christened "The Tester," in honor of the formation testing device which it will service. Mr. Halliburton and his pilot left Los Angeles on Monday, March 5, and arrived at Duncan the next day. They made but one stop, spending Monday night at El Paso. It required only 12 hours and 35 minutes actual flying time to cover the 1300 miles between Los Angeles and Duncan.

Butler Plane just before starting on maiden flight.

New Company Organized

Wichita, Kans.—The All Steel Products Manufacturing Company has been organized here for the manufacture of Cardwell-Keltner oil field winches and other oil country equipment. H. W. Cardwell is president of the new concern and Drew Seaver, vice-president and general manager. Offices and manufacturing plant are maintained at 300 South Wichita Street.

The Cardwell-Keltner winch is adaptable to Caterpillar tractors and the All Steel Products Company now are perfecting a new winch for the two-ton Caterpillar and it also will fit the Caterpillar "20" tractor.

A World's Record at Ventura

6055 feet of "ASTCO"

8⅝"—36 lb. A. P. I. Casing.

That was in the Petroleum Securities Company's Willett No. 3 at Ventura, January 18th. Field experts claim that this is the longest string of 8⅝", 36-lb. casing ever set.

Frankly, you can't make records like that with any old casing. It has to have unusually high resistance to tensile strains (picture 6055 feet!) and it must be exceptionally strong, with a high factor of safety.

The fact that this world's record was made with ASTCO Seamless Steel Casing proves that it does live up to the statements made of it—and more.

Data and specifications by return mail.

American Seamless Tube Corporation

1211 Neils Esperson Building, Houston, Texas

535 5th Ave., New York City

Petroleum Securities Bldg., Los Angeles, California

STRENGTH RESISTANCE A S T C O DURABILITY

(Trade Mark Reg.)

SQUEAKS FROM THE BULL WHEEL

"Pa, won't you please help me with my Sunday school lesson? It's about Noah and the flood, and we've got to say what the story teaches us."

"Why, that's easy, my boy. Obviously it teaches us that we should always provide for a rainy day."

"My wife's second husband, Amzi Phillamalee, came over from Rickadoodle tother day to stay with us for a spell," said Tobe Sagg to Sandy Mush. "He sat around in the way bragging that he hadn't worn an overcoat all winter, lying about how deep the snow was in Eighteen hundred and whatever it was, and telling that the backbone of winter 'peared to be broken.

"Well, p-tu," says I. "I don't know how it is with the backbone of winter, but it strikes me that the jaw-bone is still in working order.

"Then he laid back and yaw-hawked like thought that was a joke."—Kansas City Times.

"So Robert married a social nobody; and just think, his ancestors came across in the Mayflower."

"That's all right; her folks came across with $150,000."

"Who broke that window pane in your house?"

"Mother did, but it was father's fault. He ran in front of it."

Mule in the barnyard, lazy and sick;
Boy with a pin on the end of a stick
Creeps up behind him quiet as a mouse—
Crepe on the door of the little boy's house.

Abie, what for you go up stairs two at a time?

To safe my shoes, fadder.

Dot's right, my son. But look oudt you don't split your pants.

What happened to the tenderfoot stranger wot was here last month?

The second morning he wuz here, he wuz brushin' his teeth with some of that foamy tooth paste, and one of the boys thought he had hydrophoby and shot him.

"Have you much room in the new flat?"

"Mercy, no! My kitchen and dining room are so small, I have to use condensed milk."

More Over Production

Mr. and Mrs. John B—— are rejoicing over an eight-pound daughter, their sixth child since last Saturday.—Pittsburgh Post-Gazette.

RETRENCHMENT

This oil game is a mystery
Eccentric and erratic,
If they keep on cutting down the crews
They'll have it automatic.

To Europe go the presidents,
Assistants all let out;
Don't need a buyer any more,
He's acting as a scout.

The office boy signs all the checks,
The treasurer wrenches rods,
The P.B.X. girl keeps the books,
The farm boss pumps. Ye Gods!

The sixty-seven roustabouts
Have dwindled down to five,
The pumper's wife is selling "choc"
To keep her flock alive.

One says the oil game is "depressed,"
Another calls it "slump,"
I think it's hit "the devil's slide"
And "bumped the eternal bump."

Forsooth, there must be something wrong,
And I've begun to think
The dear old thing's been dead so long
'T will soon begin to stink.

—A. C. Frampton.

Hon. J. Adam Bede, ex-congressman from Minnesota, addressing the Ohio Petroleum Marketers' convention at Columbus, said:

"One of the things I tried to do while in congress was to pass a law enabling us to swap the Phillipines for Ireland, so we could raise our own police. They defeated my measure, but now I am preparing a bill that I think will be of great benefit to mankind. I want a law to make all the bow-legged men marry all the knock-kneed women so as to straighten things out."

A man may live for 50 years with his own family, but that's not news. But just let him live one day with somebody's else's family and it will be on the front page of every newspaper in the country.

A West Kentucky boy drove to the court house and went in for a marriage license. He answered all the questions satisfactorily till it came to Susie's age. Then he said:

"She air out hyeh, suppos'n we ast her."

The clerk followed him out and when he reached the wagon found two or three tow-heads sleeping on a pile of straw in the wagon-bed.

"Whose are these?" he inquired.

"They're our'n," said the country boy, "You see, the roads were so dang bad and hit took us so long to git hyeah——.'

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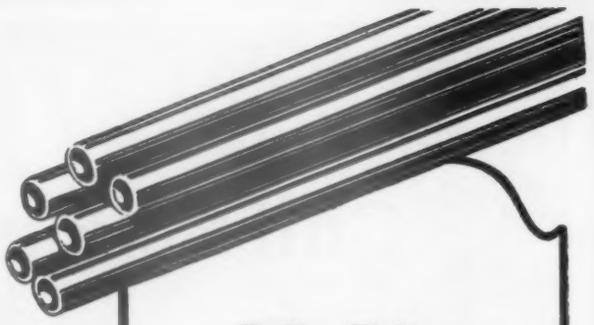

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—THROUGH USE OF ELECTRIFIED OIL PUMPING EQUIPMENT

Weigh all the advantages of electric power for oil pumping against the claims of advocates of other forms of power. Figure in all the costs of more expensive equipment, the probable number of years of service, the cost of repairs and overhauling. Then figure the savings that are to be made through the use of electric power.

One important factor in the operation of a pipe line pumping station is the possibility of abandonment after a short period of years. If this is necessary, electrically driven equipment has a high salvage value. Cases are on record where the savings in constructing an electric power driven pumping plant have been sufficient to pay the electric power bill for five years, a point worth remembering when statistics show that few oil fields have produced in large quantities after five years.

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